*Enduring Resources*

475 17TH Street Suite 1500 Denver Colorado 80202
Telephone 303 573-1222 Fax 303 573 0461

September 12, 2006

Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
P. O. Box 145801
Salt Lake City, Utah 84114-5801

Attn.: Ms. Diana Whitney

RE: Enduring Resources, LLC
Archy Bench 10-22-34-36
SWSE 36-10S-22E
State Lease: ML-49959
Uintah County, Utah

Dear Ms. Whitney:

Enclosed are two original applications to drill concerning the above-referenced proposed well. This information was also submitted to SITLA.

Enduring Resources, LLC is requesting the Utah Division of Oil, Gas and Mining to hold this application and all future information as confidential.

If any questions arise or additional information is required, please contact me at 303-350-5719

Very truly yours,

Evette Bissett

**ENDURING RESOURCES, LLC**
Evette Bissett
Regulatory Compliance Assistant

Enclosures
cc: SITLA w/ attachments

RECEIVED
SEP 14 2006
DIV. OF OIL, GAS & MINING

**STATE OF UTAH**
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 3

AMENDED REPORT ☐
(highlight changes)

# APPLICATION FOR PERMIT TO DRILL

| 5. MINERAL LEASE NO: | 6. SURFACE: |
|---|---|
| ML-49959 | State |

1A. TYPE OF WORK: DRILL ☑ REENTER ☐ DEEPEN ☐

B. TYPE OF WELL: OIL ☐ GAS ☑ OTHER _____ SINGLE ZONE ☐ MULTIPLE ZONE ☑

7. IF INDIAN, ALLOTTEE OR TRIBE NAME:

8. UNIT or CA AGREEMENT NAME:

2. NAME OF OPERATOR:
Enduring Resources, LLC

9. WELL NAME and NUMBER:
Archy Bench 10-22-34-36

3. ADDRESS OF OPERATOR:
475 17th St., Ste 1500 CITY Denver STATE CO ZIP 80220

PHONE NUMBER:
(303) 350-5719

10. FIELD AND POOL, OR WILDCAT:
~~Undesignated~~ Natural Buttes

4. LOCATION OF WELL (FOOTAGES)
AT SURFACE: 755' FSL - 2210' FEL 637981X 4417723Y 39.900251 -109.385961
AT PROPOSED PRODUCING ZONE: Same

11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
SWSE 36 10S 22E

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE:
40.3 Southeast of Bonanzal, UT

12. COUNTY:
Uintah

13. STATE:
UTAH

| 15. DISTANCE TO NEAREST PROPERTY OR LEASE LINE (FEET) | 16. NUMBER OF ACRES IN LEASE: | 17. NUMBER OF ACRES ASSIGNED TO THIS WELL: |
|---|---|---|
| 755' | 1360 | 40 acres |
| **18. DISTANCE TO NEAREST WELL (DRILLING, COMPLETED, OR APPLIED FOR) ON THIS LEASE (FEET)** | **19. PROPOSED DEPTH:** | **20. BOND DESCRIPTION:** |
| 1000' + | 8,063 | RLB0008031 |
| **21. ELEVATIONS (SHOW WHETHER DF, RT, GR, ETC.):** | **22. APPROXIMATE DATE WORK WILL START:** | **23. ESTIMATED DURATION:** |
| 5753' RT-KB | 12/1/2006 | 20 days |

24. **PROPOSED CASING AND CEMENTING PROGRAM**

| SIZE OF HOLE | CASING SIZE, GRADE, AND WEIGHT PER FOOT | SETTING DEPTH | CEMENT TYPE, QUANTITY, YIELD, AND SLURRY WEIGHT | | | |
|---|---|---|---|---|---|---|
| 20" | 14" line pipe | 40 | 3 yards | Ready Mix | | |
| 11" | 8-5/8" J-55 24# | 2,016 | Premium Lead | 138 sxs | 3.50 | 11.1 |
| | | | Premium Tail | 138 sxs | 1.15 | 15.8 |
| 7-7/8" | 4-1/2" N-80 11.6# | 8,063 | Class G | 152 sxs | 3.3 | 11.0 |
| | | | 50/50 Poz Class G | 841 sxs | 1.56 | 14.3 |
| | | | | | | |
| | | | | | | |

25. **ATTACHMENTS**

VERIFY THE FOLLOWING ARE ATTACHED IN ACCORDANCE WITH THE UTAH OIL AND GAS CONSERVATION GENERAL RULES:

☑ WELL PLAT OR MAP PREPARED BY LICENSED SURVEYOR OR ENGINEER
☑ EVIDENCE OF DIVISION OF WATER RIGHTS APPROVAL FOR USE OF WATER
☑ COMPLETE DRILLING PLAN
☐ FORM 5, IF OPERATOR IS PERSON OR COMPANY OTHER THAN THE LEASE OWNER

NAME (PLEASE PRINT) Evette Bissett TITLE Regulatory Compliance Assistant

SIGNATURE Evette Bissett DATE 9/11/2006

**(This space for State use only)**

API NUMBER ASSIGNED: 43-047-38605

**Approved by the Utah Division of Oil, Gas and Mining**

APPROVAL:

Date: 05-14-07

By: _____

(See Instructions on Reverse Side)

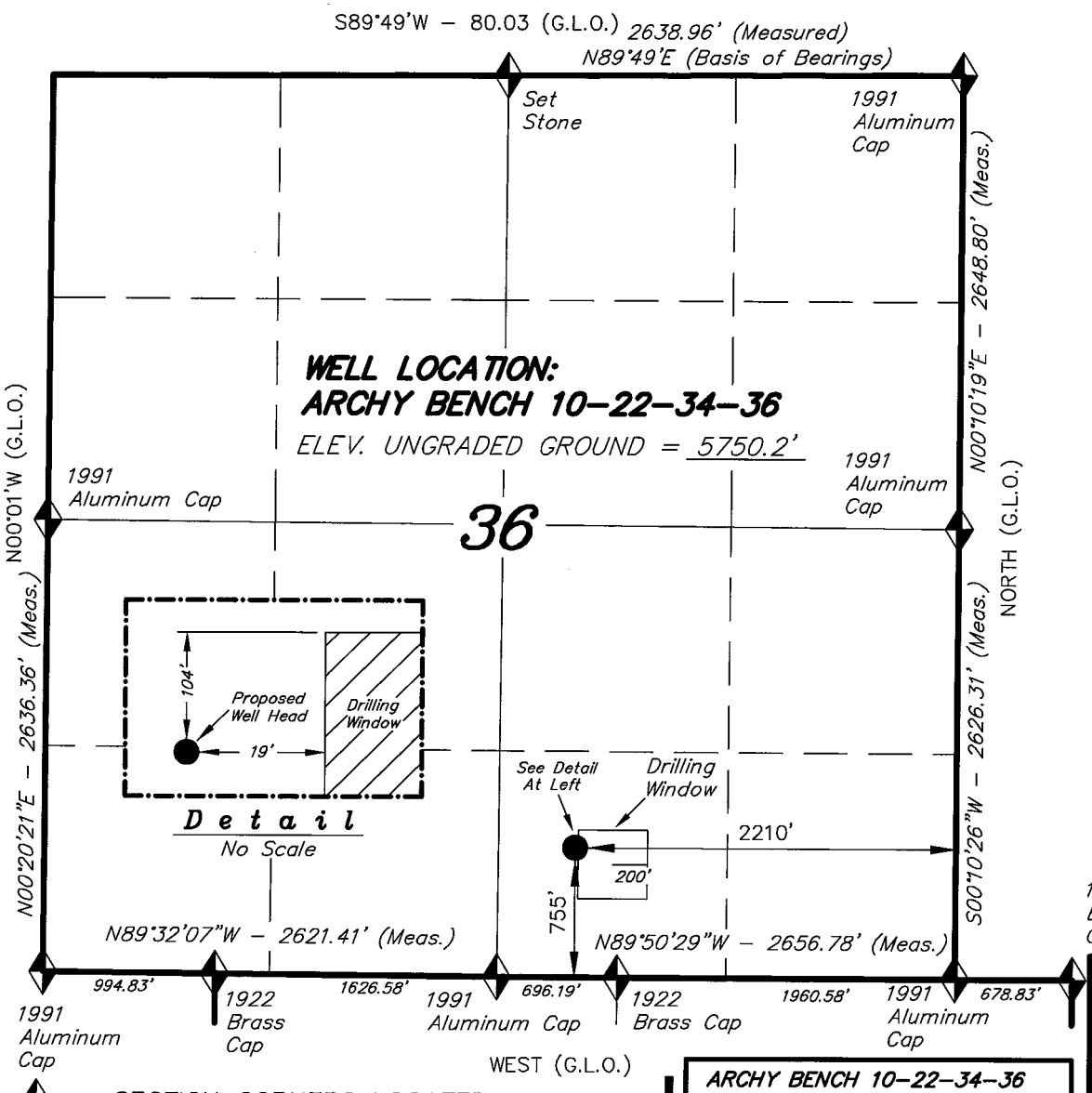
RECEIVED
SEP 14 2006
DIV. OF OIL, GAS & MINING

(11/2001)

# T10S, R22E, S.L.B.&M.

## ENDURING RESOURCES

WELL LOCATION, ARCHY BENCH 10-22-34-36, LOCATED AS SHOWN IN THE SW 1/4 SE 1/4 OF SECTION 36, T10S, R22E, S.L.B.&M. UINTAH COUNTY, UTAH.




◆ = SECTION CORNERS LOCATED

BASIS OF ELEV; U.S.G.S. 7-1/2 min QUAD (ARCHY BENCH)

**ARCHY BENCH 10-22-34-36 (Surface Location) NAD 83**

LATITUDE = 39° 54' 00.68"

LONGITUDE = 109° 23' 12.28"

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. No.189377

STACY W. STEWART
REGISTERED LAND SURVEYOR
REGISTRATION No. 189377
STATE OF UTAH

REGISTERED LAND SURVEYOR STATE OF UTAH


**TRI STATE LAND SURVEYING & CONSULTING**
180 NORTH VERNAL AVE. – VERNAL, UTAH 84078
(435) 781-2501


| | | |
|---|---|---|
| DATE DRAWN: 8-17-05 | SURVEYED BY: C.M. | SHEET 2a OF 10 |
| REVISED: | DRAWN BY: F.T.M. | |
| NOTES: | SCALE: 1" = 1000' | |

*ENDURING RESOURCES, LLC*
**425 Seventeenth Street, Suite 1500**
**Denver, Colorado 80202**
**Telephone: 303-573-1222**
**Facsimile: 303-573-0461**

September 12, 2006

State of Utah
Division of Oil, Gas and Mining
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Attention: Ms. Diana Whitney

**RE: Exception Well Location**
**Archy Bench 10-22-34-36**
**SWSE Section 36-T10S-R22E**
**755' FSL - 2210 FEL**
**Lease Serial No.: UTU-49959**
**Uintah County, Utah**

Dear Ms. Whitney:

Enduring Resources, LLC ("ERLLC") plans to drill the above-referenced well from an exception location to limit surface impact and drilling on steep slopes.

ERLLC is the only leasehold interest owner within 460 feet of any part of the above-referenced proposed well's proposed well bore, therefore,

*A. ERLLC also grants itself permission for an exception well location.*

In the event there are any other outstanding matters preventing these APD's from being approved, please let me know at your earliest convenience, 303-350-5719 (ebissett@enduringresources.com)

Very truly yours

Evette Bissett

**ENDURING RESOURCES, LLC**
Evette Bissett
Regulatory Compliance Assistant

**Enduring Resources, LLC**
**Archy Bench 10-22-34-36**
**SWSE 36-T10S-R22E**
**Uintah County, Utah**
**State Lease: ML-49959**

## ONSHORE ORDER 1 - DRILLING PLAN

### 1. Estimated Tops of Geological Markers:

| Formation | Depth (K.B.) |
|---|---|
| Uinta | Surface |
| Green River | 901 |
| Wasatch | 3853 |
| Mesaverde | 5948 |

### 2. Estimated Depths of Anticipated Water, Oil, Gas or Other Minerals:

| Substance | Formation | Depth (K.B.) |
|---|---|---|
| | | |
| | KB-Uinta Elevation: 5753' | |
| Oil / Gas | Green River | 901 |
| Oil /Gas | Wasatch | 3853 |
| Oil /Gas | Mesaverde | 5948 |
| | Estimated TD | 8063 |

A 11" hole will be drilled to approximately 2000 feet. The depth will be determined by the depth that the Birds Nest zone is encountered. The hole will be drilled 400 feet beyond the top of the Birds Nest zone and surface casing will be set.

### 3. Pressure Control Equipment: (3000 psi schematic attached)

A. Type: Eleven (11) inch double gate hydraulic BOP with eleven (11) inch annular preventer on 3,000 psi casinghead, with 3,000 psi choke manifold equipped per the attached diagram. BOPE as specified in *Onshore Oil & Gas Order Number 2.* A PVT, stroke counter and flow sensor will be installed to check for flow and monitor pit volume.

B. Pressure Rating: 3,000 psi BOPE

C. Kelly will be equipped with upper and lower Kelly valves.

D. Testing Procedure: Annular Preventer

At a minimum, the annular preventer will be pressure tested to 50% of the stack rated working pressure for a period of ten (10) minutes or until provisions of the test are met, whichever is longer.

At a minimum, the above pressure test will be performed:

1. When the annular preventer is initially installed;
2. Whenever any seal subject to test pressure is broken;
3. Following related repairs; and
4. At thirty (30) day intervals.

In addition to the above, the annular preventer will be functionally operated at least weekly.

Blow-Out Preventer

At a minimum, the BOP, choke manifold, and related equipment will be pressure tested to the approved working pressure of the BOP stack (if isolated from the surface casing by a test plug) or to 70% of the internal yield strength of the surface casing (if the BOP is not isolated from the casing by a test plug). Pressure will be maintained for a period of at least ten (10) minutes or until the requirements of the test are met, whichever is longer.

At a minimum, the above pressure test will be performed:

1. When the BOP is initially installed;
2. Whenever any seal subject to test pressure is broken;
3. Following related repairs; and
4. At thirty (30) day intervals.

In addition to the above, the pipe and blind rams will be activated each trip, but not more than once each day. All BOP drills and tests will be recorded in the IADC driller's log.

E. Miscellaneous Information:

The blowout preventer and related pressure control equipment will be installed, tested and maintained in compliance with the specifications in and requirements of *Onshore Oil & Gas Order Number 2*.

## 4. Proposed Casing & Cementing Program:

**A.** Casing Program: All New

| Hole Size | Casing Size | Wt./Ft. | Grade | Joint | Depth Set (MD) |
|---|---|---|---|---|---|
| 20" | 14" O.D. | | | | 40' (GL) |
| 11" | 8-5/8" | 24# | J-55 | ST&C | 0 – 2,016' (KB) est. |
| 7-7/8" | 4-1/2" | 11.6# | N-80 | LT&C | 0 – 8063' (KB) |

The surface casing will have guide shoe, 1 joint, insert float collar. Centralize the shoe joint with bowspring centralizers in the middle and top of the joint and the next16 joints

with bowspring centralizers on every other collar (8 centralizers total). Thread lock guide shoe.

Casing string(s) will be pressure tested to 0.22 psi/foot of casing string length or 1500 psi, whichever is greater (not to exceed 70% of the internal yield strength of the casing), after cementing and prior to drilling out from under the casing shoe.

**B.** Casing Design Parameters:

| Depth (MD) | Casing | Collapse(psi)/SF | Burst (psi)/SF | Tension(mlbs)/SF |
|---|---|---|---|---|
| 40' (GL) | 14" OD | | | |
| 2016' (KB) | 8-5/8", 24#/ft, J55, STC | 1370/1.52(a) | 2950/3.28(b) | 244/5.81(c) |
| 8063' (KB) | 4-1/2", 11.6#/ft, N-80, LTC | 6350/1.52 (d) | 7780/2.02 (e) | 223/2.77(f) |

(a.) based on full evacuation of pipe with 8.6 ppg fluid on annulus
(b.) based on 8.6 ppg gradient with no fluid on annulus
(c.) based on casing string weight in 8.6 ppg mud
(d.) based on full evacuation of pipe with 10.0 ppg fluid on annulus
(e.) based on 9.2 ppg gradient, gas to surface, with no fluid on annulus, no gas gradient
(f.) based on casing string weight in 9.2 ppg mud

**PROPOSED CEMENTING PROGRAM**

**Surface Casing (if well will circulate)**-Cemented to surface

| CASING | SLURRY | FT. of FILL | CEMENT TYPE | SXS | EXCESS (%) | WEIGHT (ppg) | YIELD ($ft^3$/sx) |
|---|---|---|---|---|---|---|---|
| 8-5/8" | Lead | 1516 | Premium cement + 16% gel + 0.25 pps celloflake | 138 | 25% | 11.1 | 3.50 |
| 8-5/8" | Tail | 500 | Premium cement + 2% $CaC_2$ + 0.25 pps celloflake | 138 | 25% | 15.8 | 1.15 |

A cement top job is required if cement fallback is greater than 10' below ground level. Top job (weight 15.8 ppg, yield 1.15 $ft^3$/sx) cement will be premium cement w/ 3% $CaCl_2$.+0.25 pps celloflake. Volume as required

**Surface Casing (if well will not circulate)** - Cemented to surface

| CASING | SLURRY | FT. of FILL | CEMENT TYPE | SXS | EXCESS (%) | WEIGHT (ppg) | YIELD ($ft^3$/sx) |
|---|---|---|---|---|---|---|---|
| 8-5/8" | Lead | 500 | Premium cement + 2% $CaCl_2$ + 0.25 pps celloflake | 138 | 25 | 15.8 | 1.15 |
| 8-5/8" | Top job | As req. | Premium cement + 3% $CaCl_2$ + 0.25 pps celloflake | As Req. | | 15.8 | 1.15 |

**Production Casing and Liner** - Cemented TD to 300' above base of surface casing

| CASING | SLURRY | FT. of FILL | CEMENT TYPE | SXS | EXCESS (%) | WEIGHT (ppg) | YIELD ($ft^3$/sx) |
|---|---|---|---|---|---|---|---|
| 4-1/2" | Lead | 1737 | Class "G" + 5% NaCl + 12% Gel + 0.25 pps celloflake + 0.2% antifoam + 0.25% fluid loss + 1% extender | 152 | 25 | 11.0 | 3.3 |
| 4-1/2" | Tail | 4610 | 50/50 POZ Class G + 2% gel +1% $CaCl_2$ + 0.2% dispersant + 0.2% fluid loss + 0.1% antifoam | 841 | 25 | 14.3 | 1.56 |

Cement volumes for the 4-1/2" Production Casing will be calculated to provide a top of cement to 300' above base of surface casing. Cement volumes are approximate and were calculated under the assumption that a gauge hole will be achieved. Actual cement volumes may vary due to variations in the actual hole size and will be determined by running a caliper log on the drilled hole. Actual cement types may vary due to hole conditions and cement contractor used.

All waiting on cement (WOC) times will be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

## 5. Drilling Fluids (mud) Program:

| Interval (MD) | Mud Weight | Fluid Loss | Viscosity | Mud Type |
|---|---|---|---|---|
| 0' – 2016' (KB) | | No cntrl | | Air/mist |
| 2000'-3000' (KB) | 8.4-8.6 | No cntrl | 28-36 | Water |
| 3000'-8063' (KB) | 8.8-9.8 | 8 - 10 ml | 32-42 | Water/Gel |

Sufficient mud material(s) to maintain mud properties, control lost circulation and contain a blowout will be available at the well site during drilling operations.

## 6. Evaluation Program:

Tests: No tests are currently planned.

Coring: No cores are currently planned.

Samples: No sampling is currently planned.

Logging

- Dual Induction – SFL /Gamma Ray/Caliper/SP/TDLT/CNL/ML
  TD to Base Surface Casing
- Cement Bond Log / Gamma Ray:
  TD to Base of Surface Casing or Top of Cement if below Base of Surface Casing

Stimulation: A stimulation or frac treatment will be designed for completion of this well based on openhole log analysis. The drill site, as approved, will be sufficient size to accommodate all completion activities.

## 7. Abnormal Conditions:

No abnormal temperatures or pressures are anticipated. No $H_2S$ has been encountered or known to exist from previous wells drilled to similar depths in the general area.

Maximum anticipated bottom hole pressure equals approximately 4193 psi (calculated at 0.52psi/foot of hole) and maximum anticipated surface pressure equals approximately 2419 psi (anticipated bottom hole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot of hole).

## 8. Anticipated Starting Dates:

- Anticipated Commencement Date- Within one year of APD issue.
- Drilling Days- Approximately 10 days
- Completion Days - Approximately 10 days
- Anticipate location construction within 30 days of permit issue.

## 9. Variances:

None anticipated

## 10. Other:

A Cultural Resource Inventory and Paleontology reconnaissance shall be conducted for the well location, access route and pipeline. The reports shall be submitted to the Division of Oil, Gas and Mining and the School and Institutional Trust lands Administration upon their receipt.

Single Shot directional surveys will be dropped every 2000 feet to monitor hole angle.

## Directions to the Archy Bench 10-22-34-36 Well Pad

Beginning at the city of Bonanza, Utah. Leave the city of Bonanza heading south on state highway 45 for a distance of approximately 5.7 miles where the there is a turn-off to the right. Turn right, leaving state highway 45, and proceed southwest for a distance of approximately 5.1 miles (3.2 + 1.9 as shown on Topo "A"). The road then turns to the west; proceed northwesterly along said road for a distance of approximately 3.7 miles. Said road then turns to the southwest; proceed southwesterly then westerly for a distance of approximately 3.2 miles where the road forks. Turn left and bear southerly along the Asphalt Wash road for a distance of 3.0 miles where the road forks near a landing strip. Stay right, and continue heading south along the West Fork road for a distance of approximately 6.5 miles where the there is a turn-off to the right. Turn right and bear westerly for a distance of approximately 1.7 miles. The road then turns to the north; proceed northerly along said road for a distance of approximately 3.8 miles where there is a turn-off to the left. Turn left and bear northwest for a distance of approximately 1.4 miles where there is a fork in the road near a landing strip. Turn right and bear northerly for a distance of approximately 2.1 miles where the said road turns and bears southwest. Continue along said road as it turns and bears southwest and continue bearing southwest for a distance of approximately 1.5 miles. The road then turns to the north; proceed northerly for a distance of approximately 1.4 miles where there is a turn-off to the left onto proposed access. Turn left and bear northwesterly along proposed access for a distance of approximately 6,555' (about 1.2 mi.) to the Proposed Archy Bench 10-22-34-36.

# Enduring Resources, LLC

**Archy Bench 10-22-34-36**
SWSE 36-10S-22E
Uintah County, Utah
State Lease: ML-49959

## MULTI-POINT SURFACE USE & OPERATIONS PLAN

### 1. Existing Roads:

Beginning at the city of Bonanza, Utah, leave the city of Bonanza heading south on state highway 45 for a distance of approximately 5.7 miles where the there is a turn-off to the right. Turn right, leaving state highway 45, and proceed southwest for a distance of approximately 5.1 miles (3.2 + 1.9 as shown on Topo "A"). The road then turns to the west; proceed northwesterly along said road for a distance of approximately 3.7 miles. Said road then turns to the southwest; proceed southwesterly then westerly for a distance of approximately 3.2 miles where the road forks. Turn left and bear southerly along the Asphalt Wash road for a distance of 3.0 miles where the road forks near a landing strip. Stay right, and continue heading south along the West Fork road for a distance of approximately 6.5 miles where the there is a turn-off to the right. Turn right and bear westerly for a distance of approximately 1.7 miles. The road then turns to the north; proceed northerly along said road for a distance of approximately 3.8 miles where there is a turn-off to the left. Turn left and bear northwest for a distance of approximately 1.4 miles where there is a fork in the road near a landing strip. Turn right and bear northerly for a distance of approximately 2.1 miles where the said road turns and bears southwest. Continue along said road as it turns and bears southwest and continue bearing southwest for a distance of approximately 1.5 miles. The road then turns to the north; proceed northerly for a distance of approximately 1.4 miles where there is a turn-off to the left onto proposed access. Turn left and bear northwesterly along proposed access for a distance of approximately 6,555' (about 1.2 mi.) to the Proposed Archy Bench 10-22-34-36.

### 2. Planned Access Roads:

The proposed access road will be approximately 6,555 feet of new construction, of which 600 feet is on-lease and 5,955 feet are on Federal Lease #UTU66407. **BLM Right-of-Way for access has been applied for and approved.**

The proposed access road will be utilized to transport personnel, equipment and supplies to and from the proposed well site during drilling, completion and production operations. The road will be utilized year round.

The access road will be crowned 2% to 3%, ditched and constructed with a running surface of 18 feet and a maximum disturbed width of 30 feet right-of-way. Maximum grade of road is 5% or less. Graveling or capping the roadbed will be performed as necessary to provided a well constructed, safe road. No fence crossings, culverts, turnouts, cattle guards or major cuts and fills are required. Prior to construction or upgrading, the proposed road shall be cleared of any snow and allowed to dry completely.

Surface disturbance and vehicular traffic will be limited to the proposed location and proposed access route. Any additional area needed will be approved in advance. All construction shall be in conformance with the standards outlined in the BLM and Forest Service publication: *Surface Operating Standards for Oil and Gas Exploration and Development. 1989.*

The road surface and shoulders will be kept in a safe usable condition and will be maintained in accordance with the original construction standards. All drainage ditches will be kept clear and free flowing and will be maintained according to original construction standards. The access road surface will be kept free of trash during operations. All traffic will be confined to the approved disturbed surface. Road drainage crossings shall be designed so they will not cause siltation or accumulation of debris in the drainage crossing nor shall the drainages be blocked by the road bed. Erosion of drainage ditches by runoff water shall be prevented by diverting water off at frequent intervals by means of cutouts. Upgrading shall not be allowed during muddy conditions. Should mud holes develop, they shall be filled in and detours around them avoided. When snow is removed from the road during the winter months, the snow shall be pushed outside of the borrow ditches and the turnouts kept clear so that snowmelt will be channeled away from the road.

**3. Location of Existing Wells within a One-Mile radius (See "Topo" Map "C" attached):**

The following wells are wells located within a one (1) mile or greater radius of the proposed location.

a. None: Water Wells:
b. None: Injection Wells:
c. (6): Producing Wells:
   1. State 1022-36E, SWNW 36
   2. Rock House 4-36, NWNW 36
   3. Rock House 11-36, NESW 36
   4. Rock House 10-22-14-36, SWSW 36
   5. Rock House 10-22-13-36, NWSW 36
   6. Rock House 11-31, NESW 31
d. (6): Drilling Wells:
   1. Rock House 2D-36, NWNE 36
   2. Rock House 10-22-42-36, NENW 36
   3. Rock House 10-22-4-36, NWNE 36
   4. Rock House 10-22-33-36, SWNE 36
   5. Rock House 10-22-32-36, SWNE 36
   6. Rock House 10-22-21-36, NENW 36
e. None: Shut-in Wells:
f. None: Temporarily Abandoned Wells:
g. None: Disposal Wells:
h. (1): Abandoned Wells:
   1. Sharples-Texaco St 1, NESW 36
i. None: Dry Holes:
j. None: Observation Wells:

k. (11): Pending (staked) Wells:

1. There are eleven other wells staked within a one mile radius of this well

## 4. Location of Existing and/or Proposed Facilities:

All production facilities will be located on the disturbed portion of the well pad and at a minimum of 25 feet from the toe of the back slope or the top of the fill slope.

A dike will be constructed completely around those production facilities which contain fluids (i.e. production tanks, produced water tanks and/or heater treater). These dikes will be constructed of compacted subsoil, be impervious, hold 100% of the capacity of the largest tank and be independent of the back cut.

All permanent (on site for six months or longer) above the ground structures constructed or installed, including pumping units, will be painted a flat, non-reflective, earth tone color to match one of the standard environmental colors, as determined by the Rocky Mountain Five State Inter-Agency Committee

All facilities will be painted within 6 months of installation. The color shall be designated by DOG&M and SITLA. Facilities required to comply with the Occupational Safety and Health Act (OSHA) will be excluded.

Any necessary pits will be properly fenced to protect livestock and prevent wildlife entry.

Gas Gathering Pipeline for this well will be:

| | | | |
|---|---|---|---|
| 15' | Surface Pipeline | On-Lease | SITLA |
| -0- | Surface Pipeline | Off-Lease | n/a |

If this well is capable of economic production, a 4" (or less) steel surface gas gathering line and related equipment shall be installed. The surface gas gathering line shall be in use year round. A total of approximately less than 15 feet of surface gas gathering pipeline shall be laid on the surface to minimize surface disturbance:

The proposed pipeline will begin at the well site; and be laid on the surface next to the new access road to tie-in to a steel surface pipeline that is located next to the county road.

The meter run will be housed. The gas gathering line will be buried or anchored down from the wellhead to the meter.

Upon plugging and abandonment, the gas gathering line will be removed and the disturbed area will be re-contoured and restored as near as practical to the original condition. If necessary, re-seeding operations will be performed after completion of other reclamation operations.

## 5. Location and Type of Water Supply:

Whenever practical, water will be obtained from Enduring Resources LLC Water Right Number 49-2215 or Water Right Number 49-2216 (*See Townships of permitted Use below). If those sources are not available, a new water source shall be submitted prior to commencing operations. (These permits have one-year terms and then must be renewed)

*Enduring Water Permits' Townships of Use:

| | | |
|---|---|---|
| ***T10S-R22E*** | T11S-R22E | T12S-R22E |
| T10S-R23E | T11S-R23E | T12S-R23E |
| T10S-R24E | T11S-R24E | T12S-R24E |

Water will be hauled to the location over the roads marked on "Topo" Maps "A" and "B."

No water well is to be drilled on this lease.

## 6. Source of Construction Materials:

Surface and subsoil materials in the immediate area will be utilized for location and access road construction.

Any gravel will be obtained from a commercial source; however, gravel sized rock debris associated with location and access road construction may be used as access road surfacing material.

## 7. Methods of Handling Waste Materials:

Drill cuttings will be contained and buried in the reserve pit.

Drilling fluids, including salts and chemicals, will be contained in the reserve pit will be removed and disposed of at an approved waste disposal facility within 120 days after drilling is terminated.

The reserve pit will be constructed on the location and will not be located within natural drainage, where a flood hazard exits or surface runoff will destroy or damage the pit walls. The reserve pit will be constructed so that it will not leak, brake or allow discharge of liquids.

The reserve pit will be lined with ¼ felt and a minimum of 16 mm plastic with sufficient bedding used to cover any rocks. The liner will overlap the pit walls and be covered with dirt and/or rocks to hold it in place. No trash or scrap that could puncture the will be disposed of in the pit.

A chemical portable toilet will be furnished with the drilling rig. The toilet will be replaced periodically utilizing a licensed contractor to transport by truck the portable chemical toilet so that its contents can be delivered to the Vernal Wastewater Treatment Facility in accordance with state and county regulations.

Garbage, trash and other waste materials will be collected in a portable, self-contained, fully enclosed trash cage during operations. No trash well is burned on location.

All debris and other waste material not contained in the trash cage will be cleaned up and removed from the location immediately after removal of the drilling rig.

Any open pits will be fenced during the operations. The fencing will be maintained until such time as the pits are backfilled.

No chemicals subject to reporting under SARA Title III (hazardous materials) in an amount greater than 10,000 pounds will be used, produced, stored, transported or disposed of in association with the drilling, completion or testing of this well. Furthermore, no extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, will be used, produced, stored, transported or disposed of in association with the drilling, completion or testing of this well.

Produced oil will be stored in an oil tank and then hauled by truck to a crude purchaser facility. Any produced water from the proposed well will be contained in a water tank and will then be hauled by truck to an approved disposal site.

**8. Ancillary Facilities:**

During drilling operations, approximately 20 days, the site will be a manned camp. Three or four additional trailers will be on location to serve as the crews' housing and eating facilities. These will be located on the perimeter of the pad site within the topsoil stockpiles. Refer to Sheet 4.

**9. Well Site Layout: (Refer to Sheets #2, #3, and #4)**

The attached Location Layout Diagrams described drill pad cross-sections, cuts and fills and locations of the mud tanks, reserve pit, flare pit, pipe racks, trailer parking, spoil dirt stockpile(s) and surface material stockpiles(s).

Please see the attached diagram for rig orientation and access roads.

The top soil will be windrowed rather than piled. It will be reseeded and track walker at the time the location is constructed. Seeding will be with the determined during the onsite. (Refer to "Seed Mixture for Windrowed Top Soil Will included:" following herein.

The top soil removed from the pit area will be store separately and will not be reseeded until the pit is reclaimed.

All pits shall be fence to the following minimum standards:

a. 39 inch net wire shall be used with at least one strand of barbed wire on top of the net wire. Barbed wire is not necessary if pipe or some type of reinforcement rod is attached to the top of the entire fence.
b. The net wire shall be no more than 2 inches above the ground. The barbed wire shall be 3 inches over the new wire. Total height of the fence shall be at least 42 inches.

c. Corner posts shall be cemented and/or braced in such a manner to keep the fence tight at all times.
d. Standard steel, wood or pipe posts shall be used between the corner braces. Maximum distance between any two fence posts shall be no greater than 16 feet.
e. All wire shall be stretched by, using a stretching device, before it is attached to corner posts.
f. The reserve pit fencing will be on three sides during drilling operations and on the fourth side when the rig moves off location. Pits will be fenced and maintained until cleanup.
g. The reserve pit fencing will be on three sides during drilling operations and on the fourth side when the rig moves off location. Pits will be fenced and maintained until cleanup.
h. Location size may change prior to drilling the well due to the current rig availability. If the proposed location is not large enough to accommodate the drilling, the location will be re-surveyed and a Form 9 will be submitted.

## 10. Plans for Surface Reclamation:

**Producing Location:**

a. Immediately upon well completion the location and surrounding area will be cleared of all unused tubing, equipment, materials, trash and debris not required for production.
b. Immediately upon well completion any hydrocarbons in the pit shall be removed in accordance with 40CFR 3162.7.
c. Before any dirt work associated with location restoration takes place, the reserve pit shall be as dry as possible. All debris in it will be removed. Other waste and spoil materials will be disposed of immediately upon completion of operations.
d. The reserve pit and that portion of the location not needed for production facilities/operations will be re-contoured to the approximated natural contours. The reserve pit will be reclaimed within 90 days from the date of well completion, weather permitting.
e. To prevent surface water(s) from standing (ponding) on the reclaimed reserve pit area, final reclamation of the reserve pit will consist of "mounding" the surface 3 feet above surrounding round surface to allow the reclaimed pit area to drain effectively.
f. Upon completion of back filling, leveling and re-contouring, the stockpiled topsoil will be spread evenly over the reclaimed area(s).

**Dry Hole/Abandoned Location:**

i. Abandoned well sites, roads and other disturbed areas will be restored as nearly as practical to their original condition. Where applicable, these conditions include the re-establishment of irrigation systems, the re-establishment of appropriate soil conditions and re-establishment of vegetation as specified.
ii. All disturbed surfaces will be re-contoured to the approximated natural contours with reclamation of the well pad and access road to be performed as soon as practical after final abandonment. If necessary, re-seeding operations will be performed after completion of other reclamation operations.

**Seed Mixture for Windrowed Top Soil Will Included:**

To be provided by the DOG&M and/or SITLA.

**11. Surface Ownership: Location, Access and Pipeline Route:**

Wellsite: SITLA

Access: SITLA and BLM with approved ROW

Pipeline: SITLA

**12. Other Information**

**On-site Inspection for Location, Access and Pipeline Route:**

The on-site will be scheduled by SITLA and DOG&M.

**Special Conditions of Approval:**

- Tanks and Production Equipment shall be painted pursuant of SITLA and DOG&M.
- Surface Gathering Pipeline shall be 4" or less

**Archeology:**

a. A Cultural Resource Inventory Report is pending and to be prepared by Montgomery Archaeological Consultants.

**Paleontology:**

a. A Paleontology Reconnaissance Report is pending and to be prepared by Intermountain Paleo-Consulting.

If, during operations, any archaeological or historical sites, or any objects of antiquity (subject to the Antiquities Act of June 8, 1906) are discovered, all operations which would affect such sites will be suspended and the discovery reported promptly to the surface management agency.

**13. Lessee's or Operator's Representatives:**

**Representatives:**


Alvin R. (Al) Arlian
Landman – Regulatory Specialist
Enduring Resources, LLC
475 17th Street, Suite 1500
Denver, Colorado 80202
Office Tel: 303-350-5114
Fax Tel: 303-573-0461
aarlian@enduringresources.com

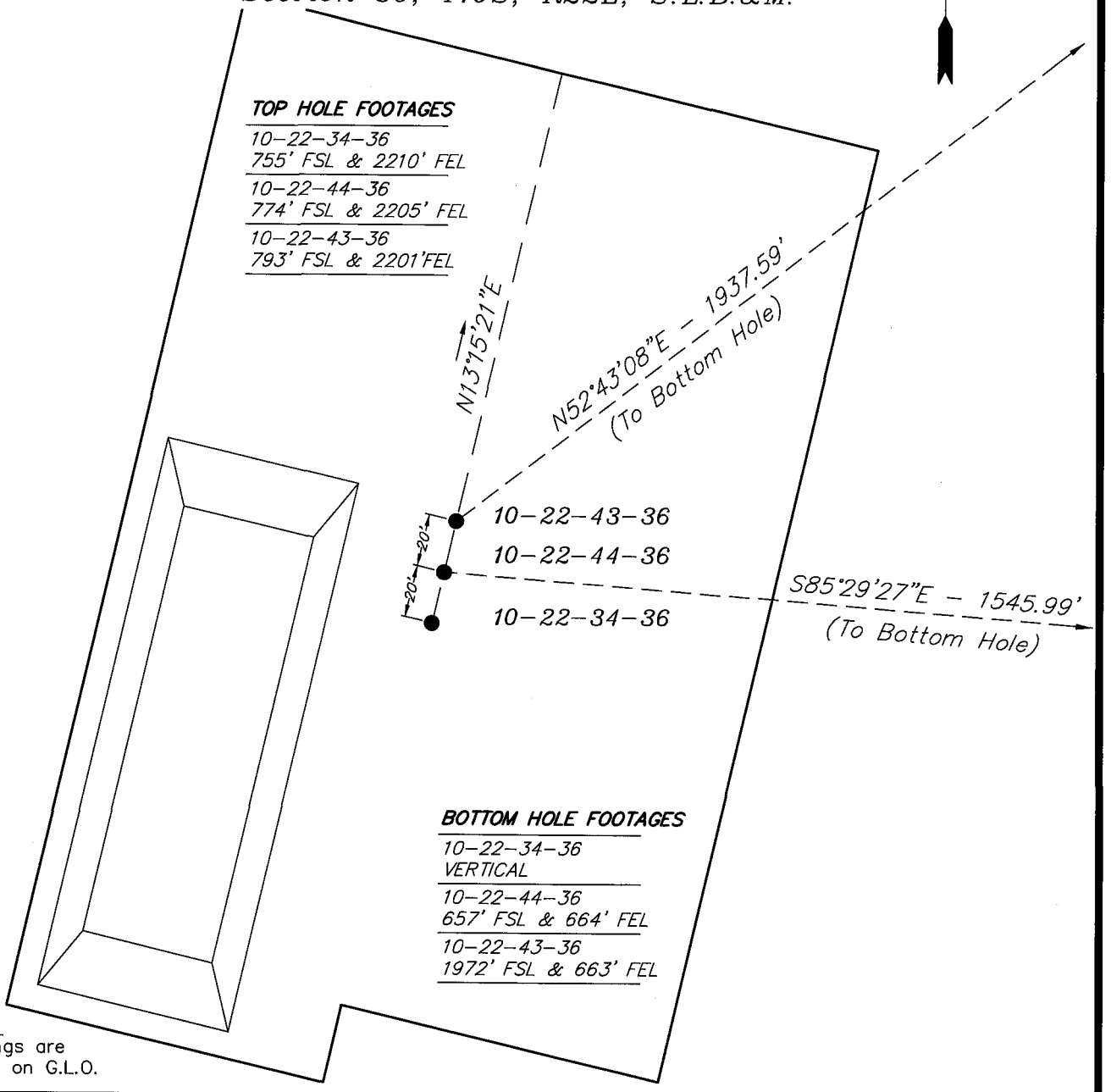
Teme Singleton
Drilling Engineer
Enduring Resources, LLC
475 17th Street, Suite 1500
Denver, Colorado 80202
Office Tel: 303-573-5711
Fax Tel: 303-573-0461
tsingleton@enduringresources.com

# ENDURING RESOURCES

## WELL PAD INTERFERENCE PLAT

**ARCHY BENCH 10-22-34-36**
**ARCHY BENCH 10-22-44-36**
**ARCHY BENCH 10-22-43-36**

Section 36, T10S, R22E, S.L.B.&M.




**Note:**
Bearings are
Based on G.L.O.

*RELATIVE COORDINATES*
*From top hole to bottom hole*

| WELL | NORTH | EAST |
|---|---|---|
| 34-36 | N/A | N/A |
| 44-36 | -122' | 1,541' |
| 43-36 | 1,174' | 1,542' |

*LATITUDE & LONGITUDE*
*Surface position of Wells (NAD 83)*

| WELL | LATITUDE | LONGITUDE |
|---|---|---|
| 34-36 | 39° 54' 00.68" | 109° 23' 12.28" |
| 44-36 | 39° 54' 00.87" | 109° 23' 12.26" |
| 43-36 | 39° 54' 01.07" | 109° 23' 12.25" |

| | | | |
|---|---|---|---|
| SURVEYED BY: | C.M. | DATE DRAWN: | 8-17-05 |
| DRAWN BY: | F.T.M. | SCALE: | 1" = 60' |
| NOTES: | | | |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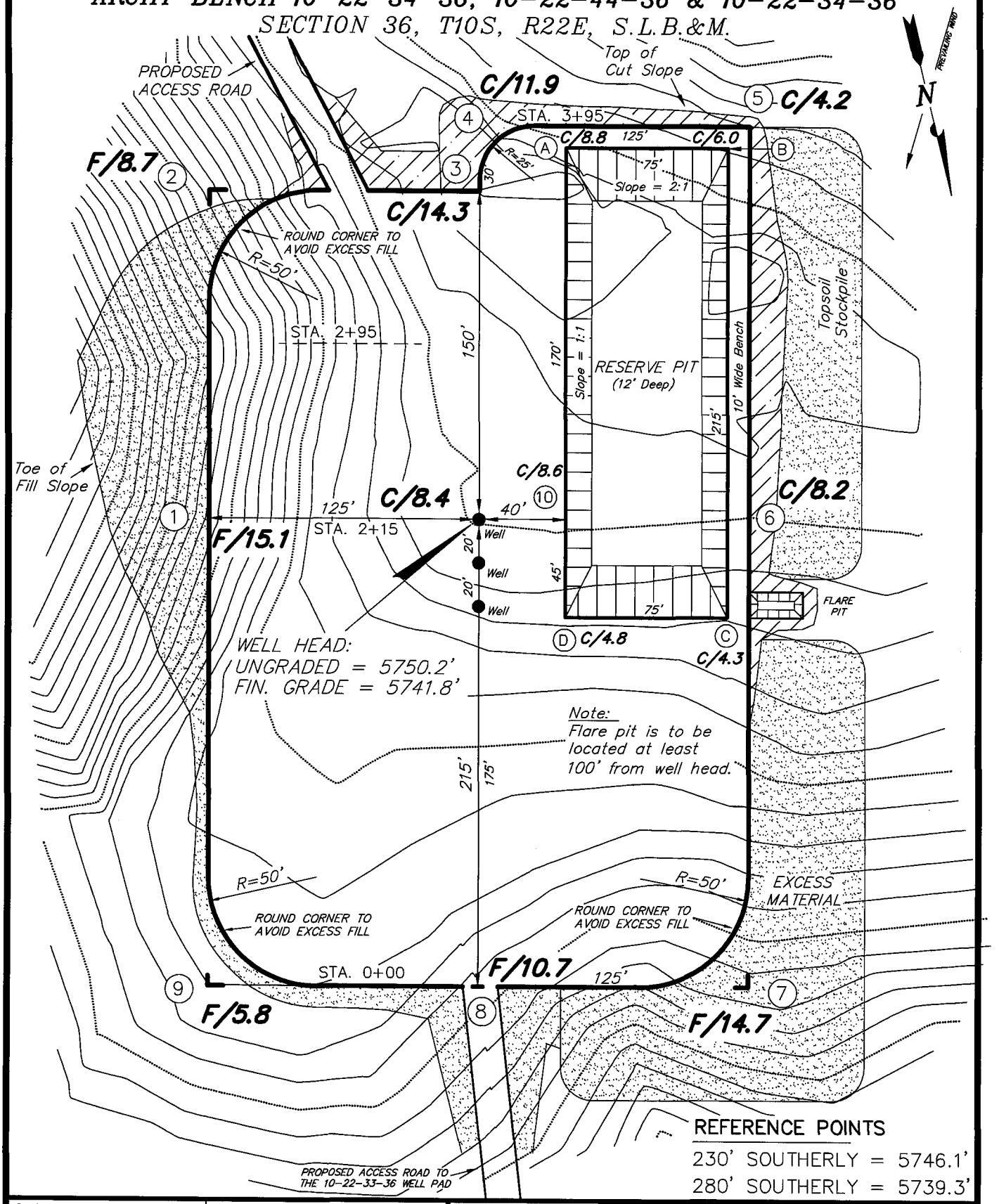
# ENDURING RESOURCES

## ARCHY BENCH 10-22-34-36, 10-22-44-36 & 10-22-34-36

SECTION 36, T10S, R22E, S.L.B.&M.




### REFERENCE POINTS

230' SOUTHERLY = 5746.1'

280' SOUTHERLY = 5739.3'

| | | | |
|---|---|---|---|
| SURVEYED BY: | C.M. | DATE DRAWN: | 8-17-05 |
| DRAWN BY: | F.T.M. | SCALE: | 1" = 60' |
| NOTES: | | | |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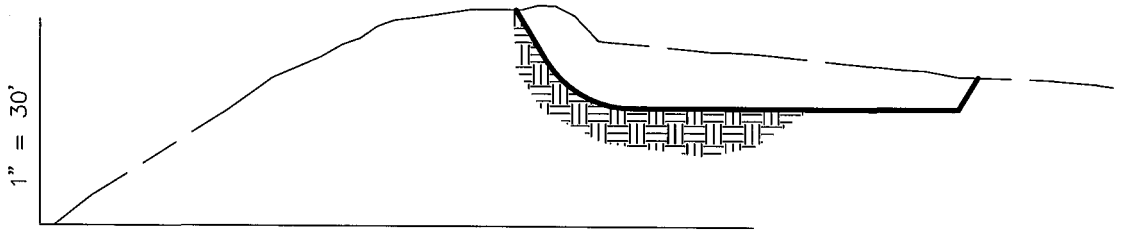
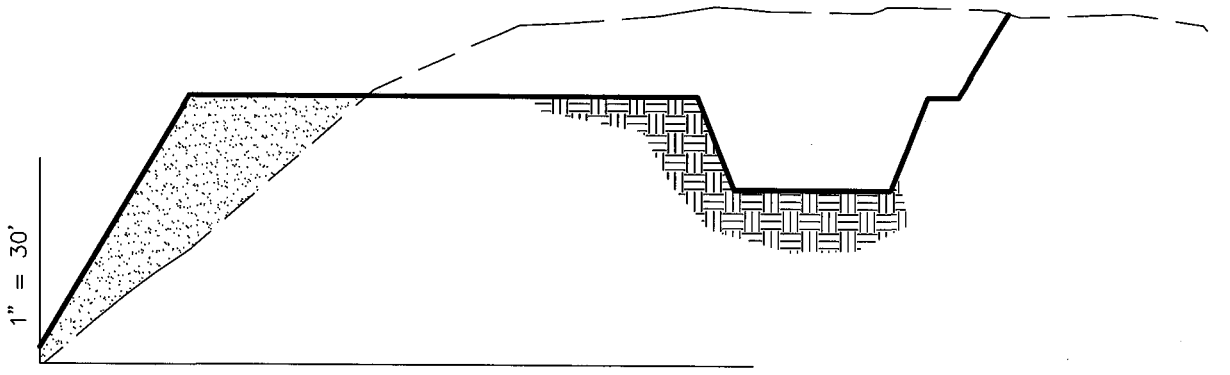
# ENDURING RESOURCES

## CROSS SECTIONS

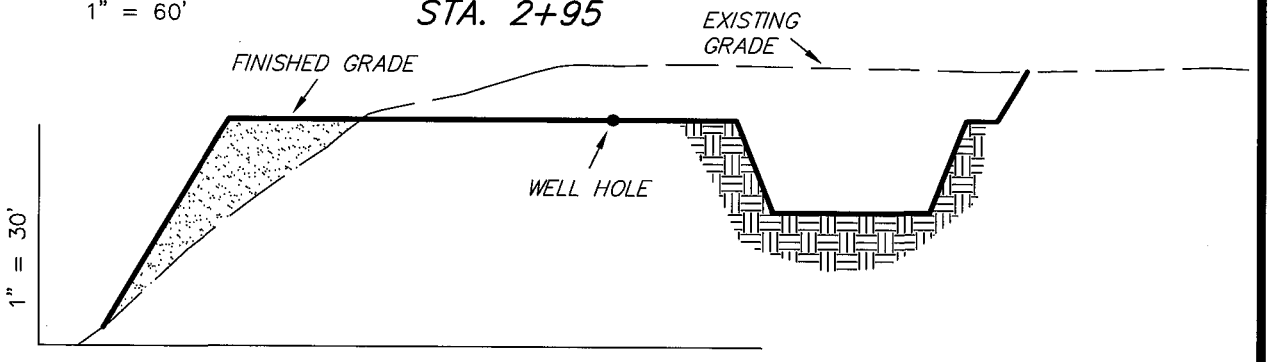
### ARCHY BENCH 10-22-34-36, 10-22-44-36 & 10-22-34-36



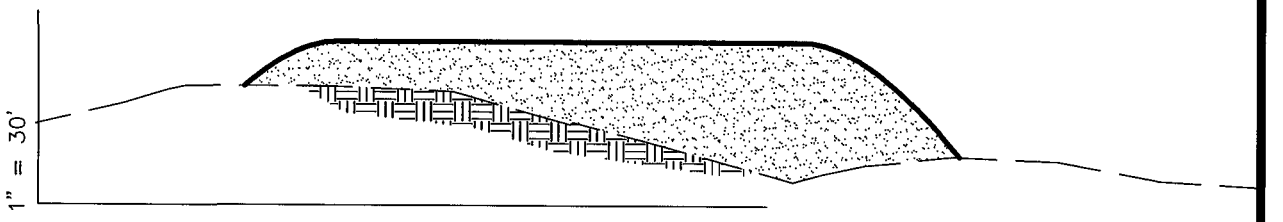

STA. 3+95




STA. 2+95




STA. 2+15




STA. 0+00

NOTE:
UNLESS OTHERWISE NOTED
ALL CUT/FILL SLOPES ARE
AT 1.5:1

**ESTIMATED EARTHWORK QUANTITIES**
**(No Shrink or swell adjustments have been used)**
(Expressed in Cubic Yards)

| ITEM | CUT | FILL | 6" TOPSOIL | EXCESS |
|---|---|---|---|---|
| PAD | 13,940 | 13,940 | Topsoil is not included in Pad Cut | 0 |
| PIT | 5,390 | 0 | | 5,390 |
| TOTALS | 19,330 | 13,940 | 2,150 | 5,390 |

| | | | |
|---|---|---|---|
| SURVEYED BY: C.M. | DATE DRAWN: | 8-17-05 | |
| DRAWN BY: F.T.M. | SCALE: | 1" = 60' | |
| NOTES: | | | |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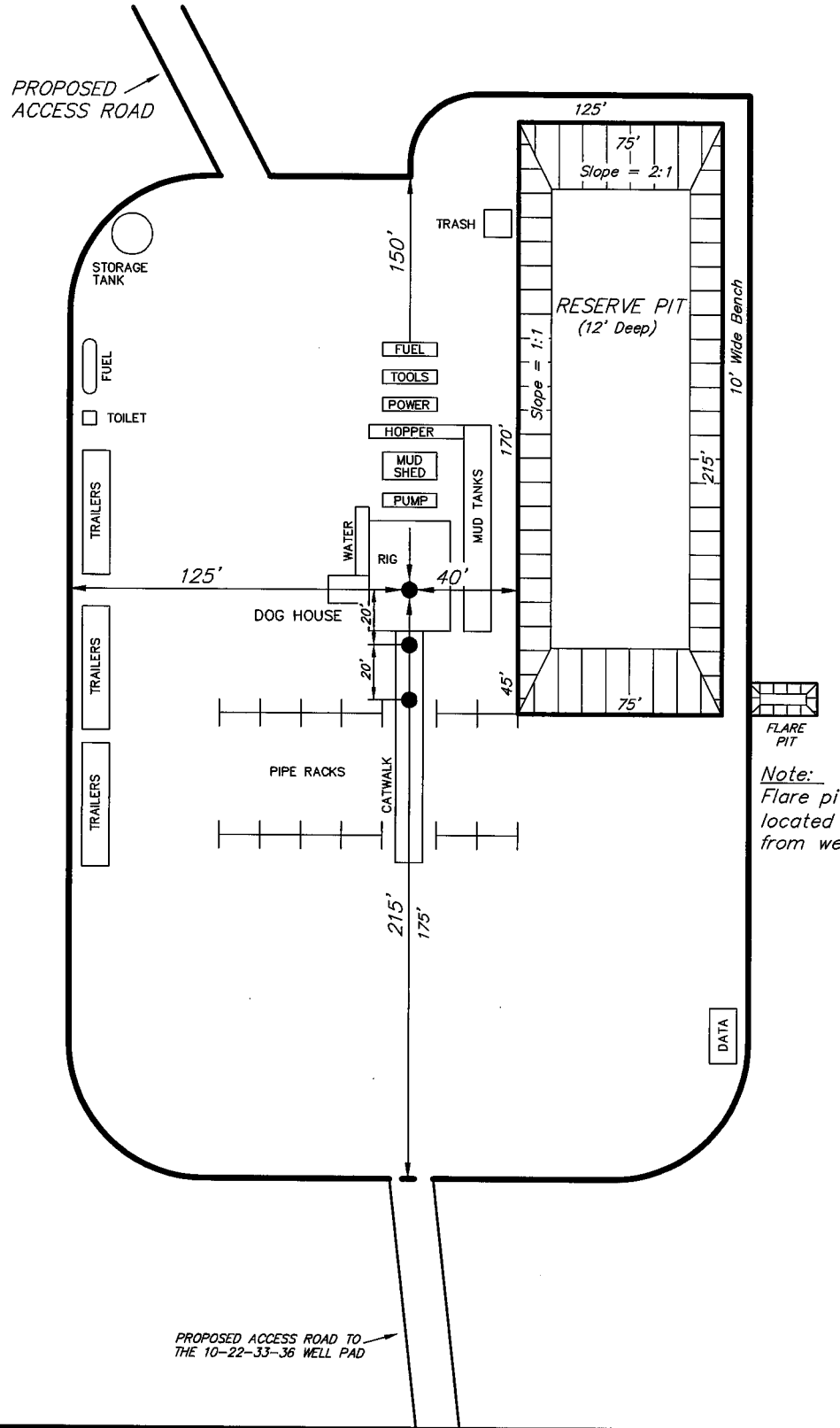
# ENDURING RESOURCES

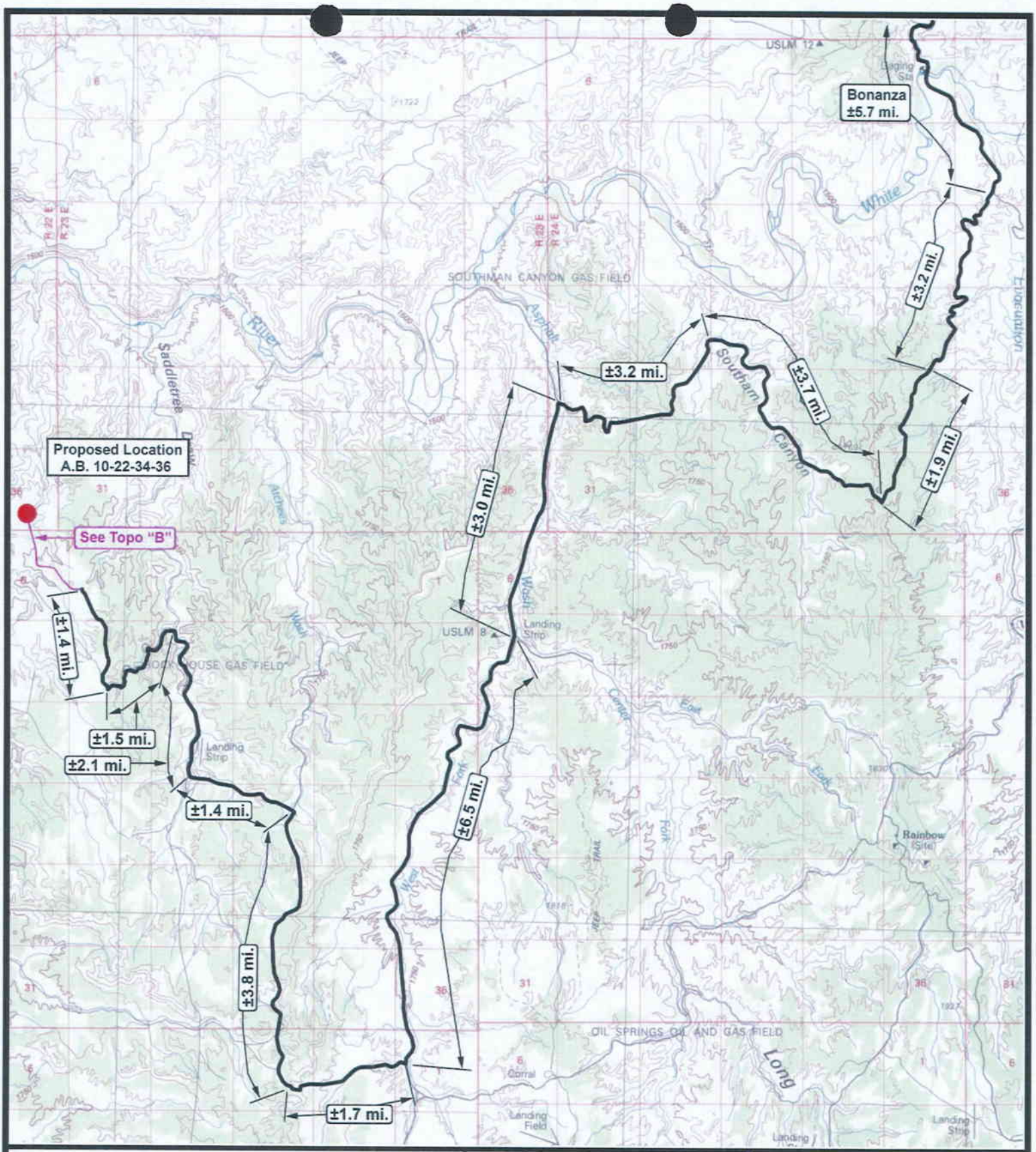
## TYPICAL RIG LAYOUT

### ARCHY BENCH 10-22-34-36, 10-22-44-36 & 10-22-34-36




Note:
Flare pit is to be located at least 100' from well head.

| | | | | | |
|---|---|---|---|---|---|
| SURVEYED BY: | C.M. | DATE DRAWN: | 8-17-05 | Tri State Land Surveying, Inc. (435) 781-2501 | SHEET 6 OF 10 |
| DRAWN BY: | F.T.M. | SCALE: | 1" = 60' | 180 NORTH VERNAL AVE. VERNAL, UTAH 84078 | |
| NOTES: | | | | | |




ENDURING RESOURCES

**Archy Bench 10-22-34-36**
**Sec. 36, T10S, R22E, S.L.B.&M.**

N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(435) 781-2501
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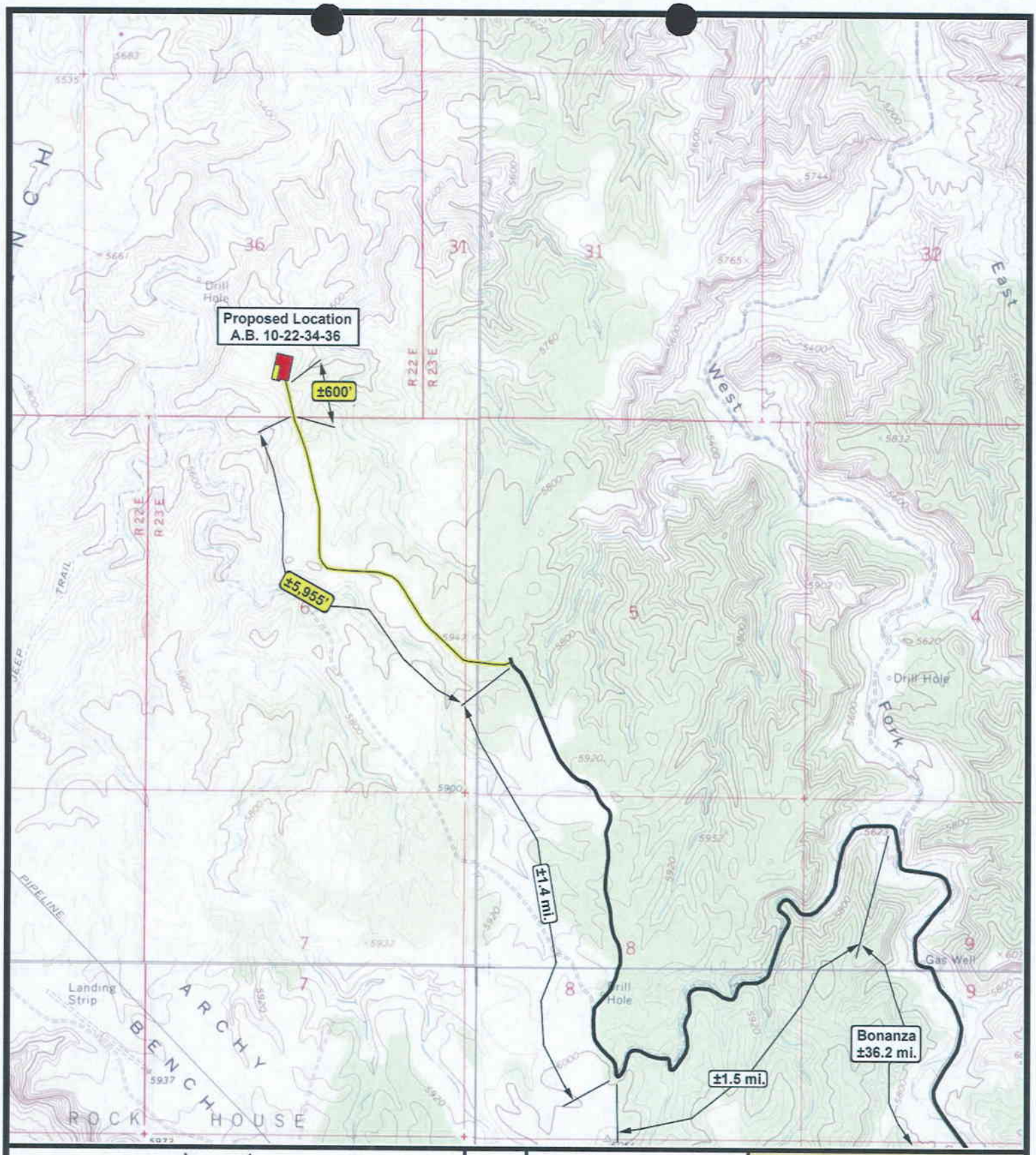
**Legend**

- Existing Road
- Proposed Access

SCALE: 1" = 100,000'
DRAWN BY: bgm
DATE: 08-19-2005

TOPOGRAPHIC MAP "A"

SHEET 7 OF 10




ENDURING RESOURCES

**Archy Bench 10-22-34-36**
**Sec. 36, T10S, R22E, S.L.B.&M.**

N

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(435) 781-2501
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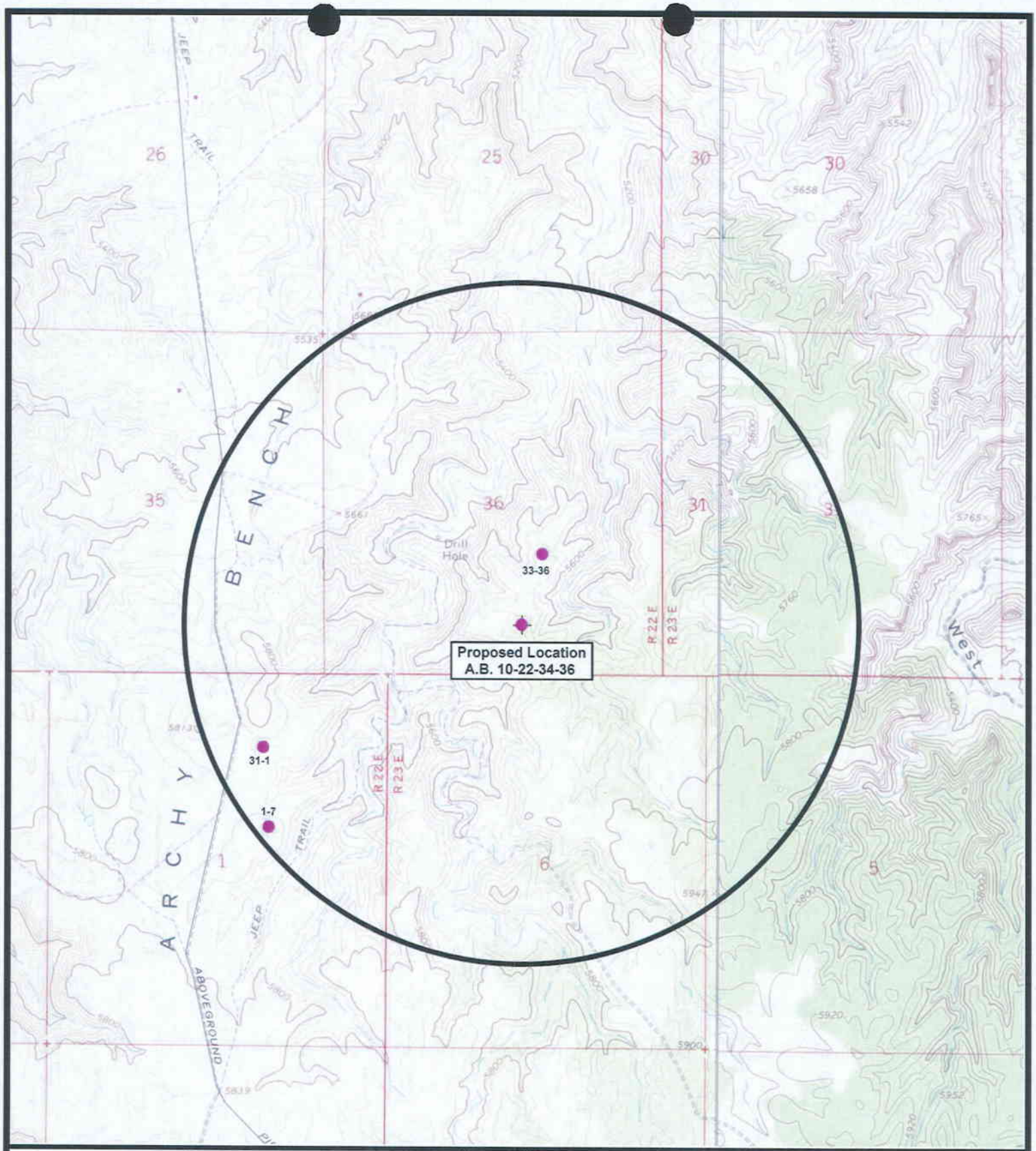
**Legend**
- Existing Road
- Proposed Access

SCALE: 1" = 2,000'
DRAWN BY: bgm
DATE: 09-02-2005

TOPOGRAPHIC MAP "B"

SHEET 8 OF 10




ENDURING RESOURCES

**Archy Bench 10-22-34-36**
**Sec. 36, T10S, R22E, S.L.B.&M.**

N

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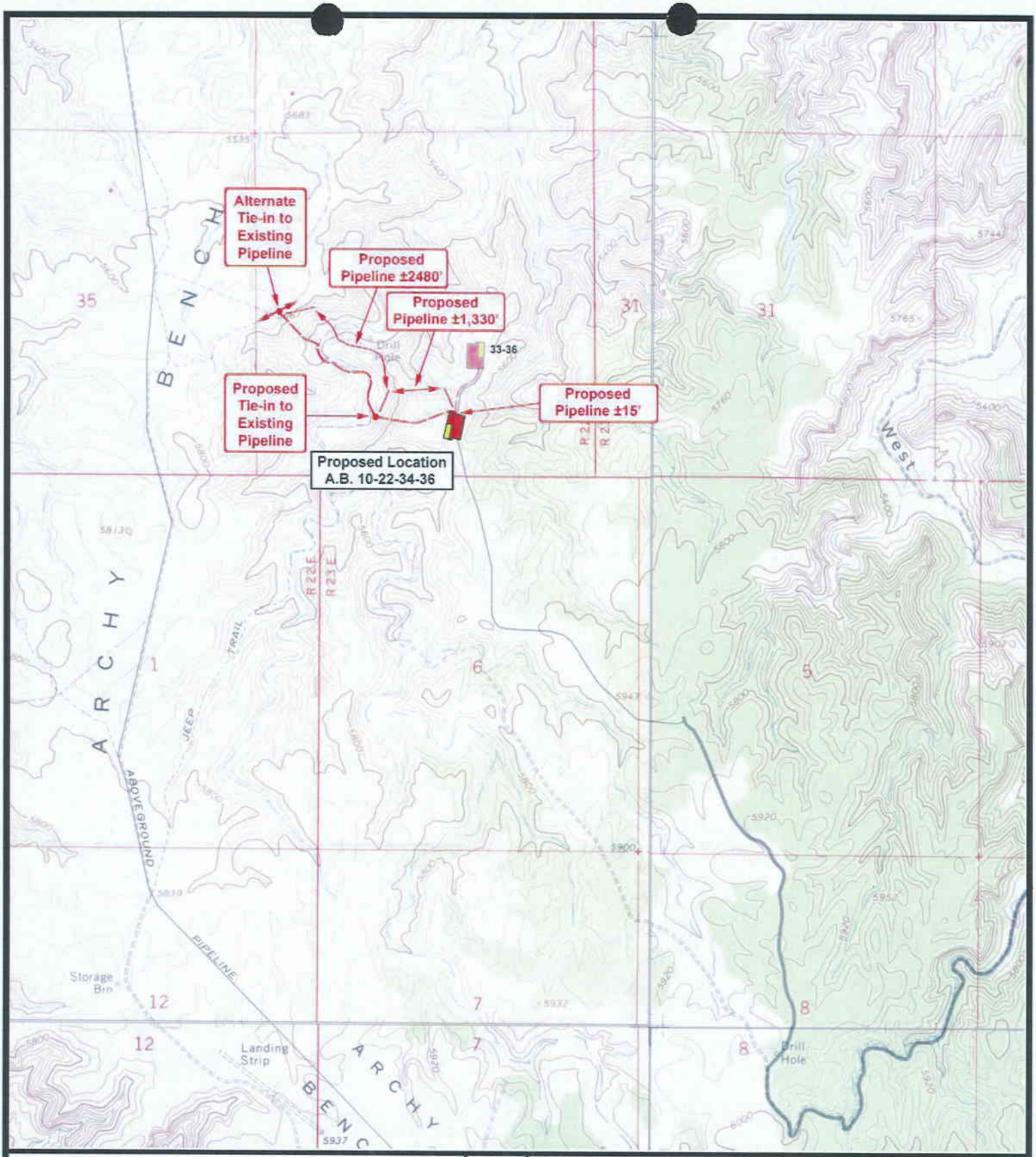
**Legend**

- Location
- One-Mile Radius

SCALE: 1" = 2,000'
DRAWN BY: bgm
DATE: 08-19-2005

TOPOGRAPHIC MAP "B"

SHEET 9 OF 10




ENDURING RESOURCES

**Archy Bench 10-22-34-36**
**Sec. 36, T10S, R22E, S.L.B.&M.**

N

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SCALE: 1" = 2,000'
DRAWN BY: bgm
DATE: 08-22-2005

**Legend**

- Roads
- Existing Gas Line
- Proposed Gas Line

TOPOGRAPHIC MAP "D"

SHEET 10 OF 10


CENTER STAKE

ENDURING RESOURCES

A.B. 10-22-34-36

Date Photographed: 08/19/2005
Date Drawn: 08/22/2005
Drawn By: bgm

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LOOKING SW ACCESS

NORTH

ENDURING RESOURCES

A.B. 10-22-34-36

Date Photographed: 08/19/2005
Date Drawn: 08/22/2005
Drawn By: bgm

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EAST

SOUTH

ENDURING RESOURCES

A.B. 10-22-34-36

Date Photographed: 08/19/2005
Date Drawn: 08/22/2005
Drawn By: bgm

Tri-State Land Surveying Inc.
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180 North Vernal Ave. Vernal, Utah 84078

WEST

# WORKSHEET
# APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 09/14/2006

API NO. ASSIGNED: 43-047-38605

WELL NAME: ARCHY BENCH 10-22-34-36

OPERATOR: ENDURING RESOURCES, LLC ( N2750 )

PHONE NUMBER: 303-350-5719

CONTACT: EVETTE BISSETT

PROPOSED LOCATION:

SWSE 36 100S 220E

SURFACE: 0755 FSL 2210 FEL

BOTTOM: 0755 FSL 2210 FEL

COUNTY: UINTAH

LATITUDE: 39.90025 LONGITUDE: -109.3860

UTM SURF EASTINGS: 637981 NORTHINGS: 4417723

FIELD NAME: NATURAL BUTTES ( 630 )

INSPECT LOCATN BY: / /

| Tech Review | Initials | Date |
|---|---|---|
| Engineering | DKD | 12/1/06 |
| Geology | | |
| Surface | | |

LEASE TYPE: 3 - State

LEASE NUMBER: ML-49959

SURFACE OWNER: 3 - State

PROPOSED FORMATION: MVRD

COALBED METHANE WELL? NO

RECEIVED AND/OR REVIEWED:

✓ Plat

✓ Bond: Fed[] Ind[] Sta[] Fee[]
(No. RLB0008031 )

N Potash (Y/N)

Y Oil Shale 190-5 (B) or 190-3 or 190-13

✓ Water Permit
(No. 49-2215 )

N RDCC Review (Y/N)
(Date: )

N/A Fee Surf Agreement (Y/N)

N/A Intent to Commingle (Y/N)

LOCATION AND SITING:

___ R649-2-3.

Unit: ___

___ R649-3-2. General

Siting: 460 From Qtr/Qtr & 920' Between Wells

✓ R649-3-3. Exception

___ Drilling Unit

Board Cause No: ___

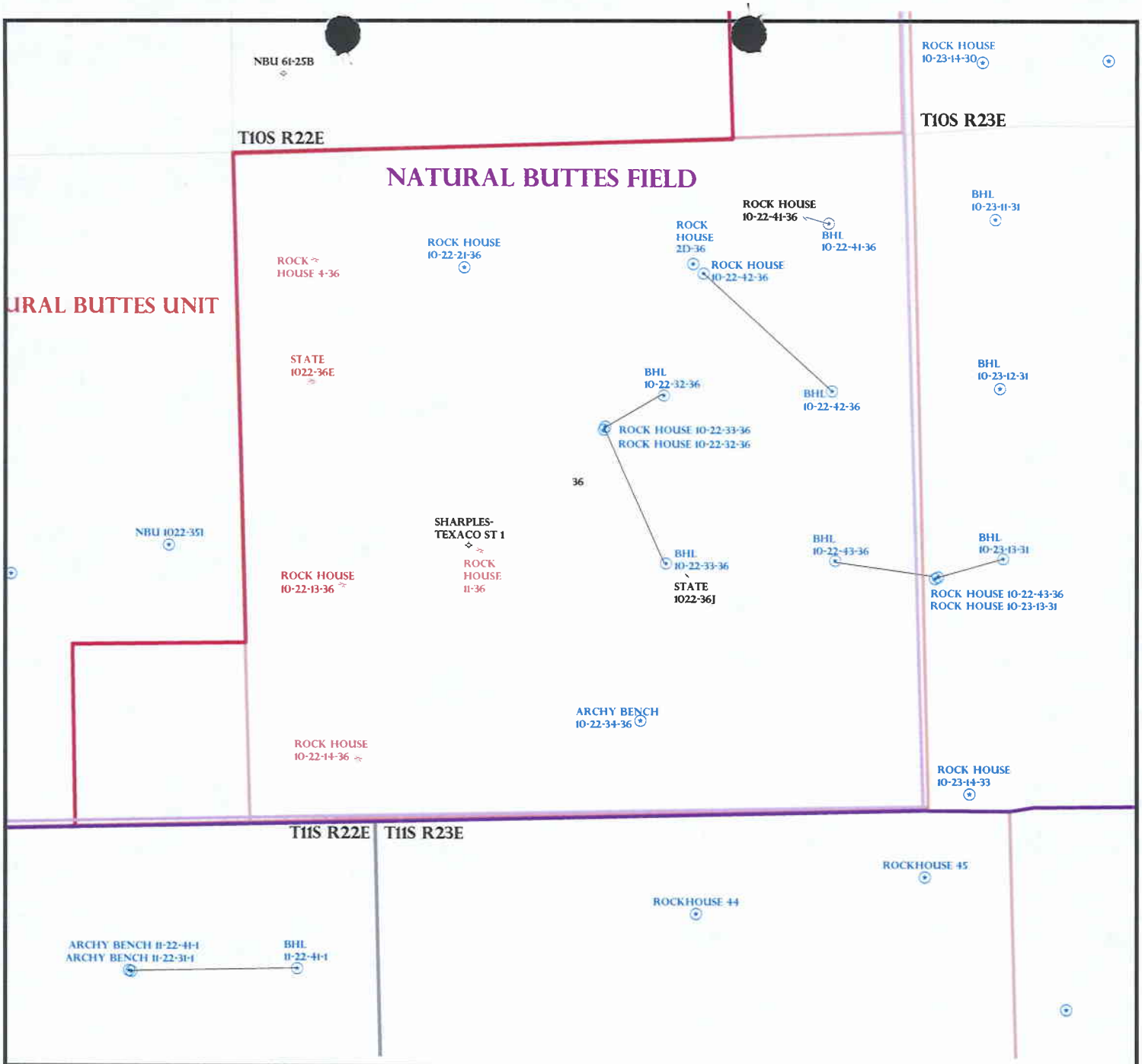
Eff Date: ___

Siting: ___

___ R649-3-11. Directional Drill

COMMENTS: Needs Presite (11-21-2006)

STIPULATIONS:
1- Spacing Stip
2- Statement of Basis
3- Oil Shale
4- Surface Csg Cmt Stip




OPERATOR: ENDURING RES LLC (N2750)

SEC: 36 T.10S R. 22E

FIELD: NATURAL BUTTES (630)

COUNTY: UINTAH

SPACING: R649-3-3 / EXCEPTION LOCATION

Field Status
- ABANDONED
- ACTIVE
- COMBINED
- INACTIVE
- PROPOSED
- STORAGE
- TERMINATED

Unit Status
- EXPLORATORY
- GAS STORAGE
- NF PP OIL
- NF SECONDARY
- PENDING
- PI OIL
- PP GAS
- PP GEOTHERML
- PP OIL
- SECONDARY
- TERMINATED

Wells Status
- GAS INJECTION
- GAS STORAGE
- LOCATION ABANDONED
- NEW LOCATION
- PLUGGED & ABANDONED
- PRODUCING GAS
- PRODUCING OIL
- SHUT-IN GAS
- SHUT-IN OIL
- TEMP. ABANDONED
- TEST WELL
- WATER INJECTION
- WATER SUPPLY
- WATER DISPOSAL
- DRILLING

Utah Oil Gas and Mining

N
W E
S

PREPARED BY: DIANA WHITNEY
DATE: 18-SEPTEMBER-2006

# Application for Permit to Drill
# Statement of Basis



| APD No | API WellNo | Status | Well Type | Surf Ownr | CBM |
|---|---|---|---|---|---|
| 118 | 43-047-38605-00-00 | | GW | S | No |

**Operator** ENDURING RESOURCES, LLC **Surface Owner-APD**
**Well Name** ARCHY BENCH 10-22-34-36 **Unit**
**Field** NATURAL BUTTES **Type of Work**
**Location** SWSE 36 10S 22E S 0 FL 0 FL GPS Coord (UTM) 637981E 4417723N

**Geologic Statement of Basis**

Enduring proposes to set 2,016 feet of surface casing cemented to the surface. The base of the moderately saline water is estimated at 4,400 feet. A search of Division of Water Rights records shows no water wells within a 10,000 foot radius of the proposed location. The surface formation at this location is the Uinta/Green River Formation transition. The Uinta Formation is made up of discontinuous sands interbedded with shales and are not expected to produce prolific aquifers. The Green River Formation is made up of interbedded limestones, shales and sandstones. Fresh water aquifers can be found in the Green River Formation and should be protected. The proposed surface casing should adequately protect any potentially useable aquifers. Production casing cement should be brought up above the base of the moderately saline ground water.

Brad Hill — 11/27/2006
**APD Evaluator** — **Date / Time**

**Surface Statement of Basis**

Both the surface and minerals of the proposed Archy Bench 10-22-34-36 gas well are owned by SITLA. Three wells are planed from this location. The location is approximately 18 miles southerly of Bonanza Ut, and approximately 66 miles southwest of Vernal, UT.

Topography in the general area is broad canyon bottoms separated by steep and often ledgey side-slopes, which top out onto ridge tops. Frequent outwash plains and deposits occur along the sides of the major bottoms. The drainages of Asphalt Wash are broad somewhat gentle alluvial washes, which are dry except for spring runoff and sometimes-intense summer rainstorms. The Asphalt Wash drainages collectively run northerly to the White River about 3 miles to the north.

The proposed location is near the end of a long narrow ridge which ends high above the junction of two major draws which join and drain into the White River. At the location the ridge is slopeing to the north in broken terraine. The pad is laid out at a right angle to the ridge and will serve for 3 wells. Approximately 6,555 feet of access road will be constructed to reach the location. The integrity of the pit liner must be insured during this well and for other directional wells planned from this location.

The location appears to be the best and possibly the only site for drilling wells in the area.

Floyd Bartlett — 11/21/2006
**Onsite Evaluator** — **Date / Time**

**Conditions of Approval / Application for Permit to Drill**

| Category | Condition |
|---|---|
| Pits | A synthetic liner with a minimum thickness of 16 mils with a felt subliner shall be properly installed and maintained in the reserve pit. |

# ON-SITE PREDRILL EVALUATION

## Utah Division of Oil, Gas and Mining

**Operator** ENDURING RESOURCES, LLC
**Well Name** ARCHY BENCH 10-22-34-36
**API Number** 43-047-38605-0 **APD No** 118 **Field/Unit** NATURAL BUTTES
**Location: 1/4,1/4** SWSE **Sec** 36 **Tw** 10S **Rng** 22E 0 F L 0 F L
**GPS Coord (UTM)** 637974 4417735 **Surface Owner**

**Participants**

Floyd Bartlett (DOGM), Doug Hammond (Enduring Resources), Larry Rowell (Ponderosa Construction), Jim Davis (SITLA), Ben Williams (UDWR)

**Regional/Local Setting & Topography**

The proposed Achhy Bench 10-22-34-36 gas well location is approximately 18 miles southerly of Bonanza Ut, and approximately 66 miles southwest of Vernal, UT.

Topography in the general area is broad canyon bottoms separated by steep and often ledgey side-slopes, which top out onto broad ridge tops. Frequent outwash plains and deposits occur along the sides of the major bottoms. The drainages of Asphalt Wash are broad somewhat gentle alluvial washes, which are dry except for spring runoff and sometimes-intense summer rainstorms. The Asphalt Wash drainages collectively run northerly to the White River about 3 miles to the north.

The proposed location is near the end of a long narrow ridge which ends above the junction of two major draws which join and drain into the White River. At the location the ridge is sloping to the north in broken terraine. The pad is laid out at a right angle to the ridge and will serve for 3 wells. Approximately 6,555 feet of access road will be constructed to reach the location.

**Surface Use Plan**

**Current Surface Use**
Wildlfe Habitat

| New Road Miles | Well Pad | | Src Const Material | Surface Formation |
|---|---|---|---|---|
| 1.2 | **Width** 250 | **Length** 355 | Onsite | UNTA |

**Ancillary Facilities** N

**Waste Management Plan Adequate?** Y

**Environmental Parameters**

**Affected Floodplains and/or Wetland** N

**Flora / Fauna**

End of the pinion-juniper type in black sage.

Deer, antelope, rabbits, coyotes and numerous small mammals and birds.

**Soil Type and Characteristics**

Stoney sandy loam.

**Erosion Issues** N

**Sedimentation Issues** N

**Site Stability Issues** N

**Drainage Diverson Required** N

**Berm Required?** N

**Erosion Sedimentation Control Required?** N

**Paleo Survey Run?** Y **Paleo Potental Observed?** N **Cultural Survey Run?** Y **Cultural Resources?**

## Reserve Pit

| Site-Specific Factors | | Site Ranking |
|---|---|---|
| **Distance to Groundwater (feet)** | >200 | 0 |
| **Distance to Surface Water (feet)** | >1000 | 0 |
| **Dist. Nearest Municipal Well (ft)** | >5280 | 0 |
| **Distance to Other Wells (feet)** | >1320 | 0 |
| **Native Soil Type** | Mod permeability | 10 |
| **Fluid Type** | Fresh Water | 5 |
| **Drill Cuttings** | Normal Rock | 0 |
| **Annual Precipitation (inches)** | <10 | 0 |
| **Affected Populations** | <10 | 0 |
| **Presence Nearby Utility Conduits** | Not Present | 0 |
| | **Final Score** | 15 2 **Sensitivity Level** |

**Characteristics / Requirements**

Thr reserve pit is planned on the southwest side of the location in an area of cut. Dimensions are 170' x 215' x 12' deep. A liner is required. The liner must be properly installed and padded to insure no leakage occurs in this specific location.

**Closed Loop Mud Required?** N **Liner Required?** Y **Liner Thickness** 16 **Pit Underlayment Required?** Y

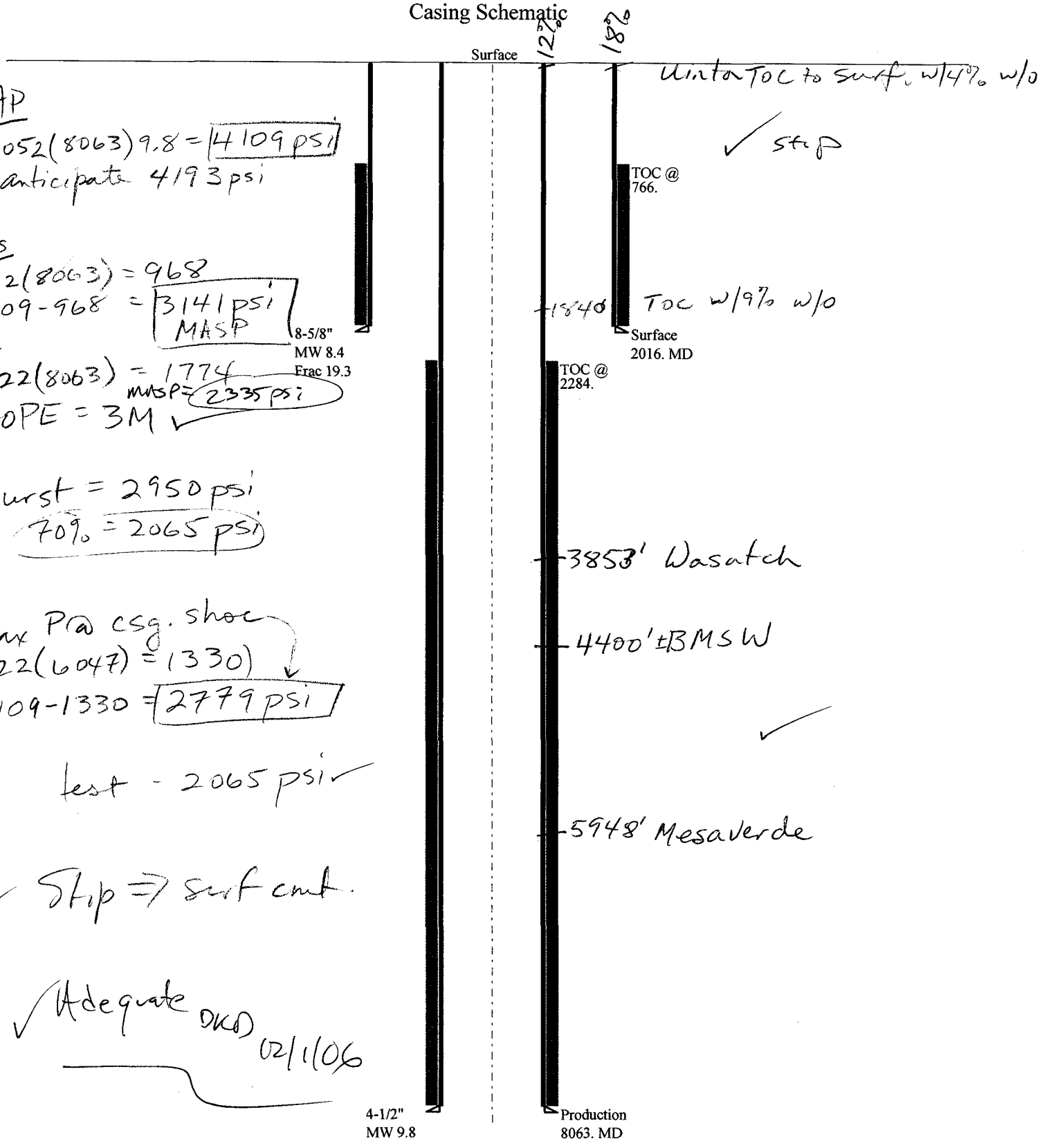
## Other Observations / Comments

Ben Williams representing the Utah Division of Wildlife Resources stated the area is classified as limited value year-long range for deer and antelope. He recommend no restrictions for either of these species.

| | |
|---|---|
| Floyd Bartlett | 11/21/2006 |
| **Evaluator** | **Date / Time** |

# 2006-11 Enduring Archy Bench 10-22-34-36

Casing Schematic




BHP

0.052(8063)9.8 = 4109 psi

anticipate 4193 psi

Gas

.12(8063) = 968

4109 - 968 = 3141 psi MASP

Wet

.22(8063) = 1774

MASP = 2335 psi

BOPE = 3M ✓

Burst = 2950 psi

70% = 2065 psi

Max Pa @ csg. shoe

.22(6047) = 1330

4109 - 1330 = 2779 psi

test - 2065 psi ✓

✓ Stip ⇒ surf cmt.

✓ Adequate DKD 02/1/06

| | |
|---|---|
| Well name: | **2006-11 Enduring Archy Bench 10-22-34-36** |
| Operator: | **Enduring Resources, LLC** |
| String type: | Surface |
| Project ID: | 43-047-38605 |
| Location: | Uintah County, Utah |

**Design parameters:**

**Collapse**
Mud weight: 8.400 ppg
Design is based on evacuated pipe.

**Burst**
Max anticipated surface pressure: 1,774 psi
Internal gradient: 0.120 psi/ft
Calculated BHP 2,016 psi

No backup mud specified.

**Minimum design factors:**

**Collapse:**
Design factor 1.125

**Burst:**
Design factor 1.00

**Tension:**
8 Round STC: 1.80 (J)
8 Round LTC: 1.80 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.60 (B)

Tension is based on buoyed weight.
Neutral point: 1,762 ft

**Environment:**
H2S considered? No
Surface temperature: 75 °F
Bottom hole temperature: 103 °F
Temperature gradient: 1.40 °F/100ft
Minimum section length: 1,000 ft

Cement top: 766 ft

**Non-directional string.**

**Re subsequent strings:**
Next setting depth: 8,063 ft
Next mud weight: 9.800 ppg
Next setting BHP: 4,105 psi
Fracture mud wt: 19.250 ppg
Fracture depth: 2,016 ft
Injection pressure: 2,016 psi

| Run Seq | Segment Length (ft) | Size (in) | Nominal Weight (lbs/ft) | Grade | End Finish | True Vert Depth (ft) | Measured Depth (ft) | Drift Diameter (in) | Est. Cost ($) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2016 | 8.625 | 24.00 | J-55 | ST&C | 2016 | 2016 | 7.972 | 10378 |

| Run Seq | Collapse Load (psi) | Collapse Strength (psi) | Collapse Design Factor | Burst Load (psi) | Burst Strength (psi) | Burst Design Factor | Tension Load (kips) | Tension Strength (kips) | Tension Design Factor |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 880 | 1370 | 1.557 | 2016 | 2950 | 1.46 | 42.3 | 244 | 5.77 J |

Prepared by: Helen Sadik-Macdonald
Div of Oil,Gas & Minerals
Phone: 801/538-5357
FAX: 801/359-3940
Date: November 30,2006
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 2016 ft, a mud weight of 8.4 ppg The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

*Engineering responsibility for use of this design will be that of the purchaser.*

| | |
|---|---|
| Well name: | **2006-11 Enduring Archy Bench 10-22-34-36** |
| Operator: | **Enduring Resources, LLC** |
| String type: | Production |
| Project ID: | 43-047-38605 |
| Location: | Uintah County, Utah |

**Design parameters:**

**Collapse**

Mud weight: 9.800 ppg
Design is based on evacuated pipe.

**Burst**

Max anticipated surface pressure: 2,331 psi
Internal gradient: 0.220 psi/ft
Calculated BHP 4,105 psi

No backup mud specified.

**Minimum design factors:**

**Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Tension:**

| | |
|---|---|
| 8 Round STC: | 1.80 (J) |
| 8 Round LTC: | 1.80 (J) |
| Buttress: | 1.60 (J) |
| Premium: | 1.50 (J) |
| Body yield: | 1.60 (B) |

Tension is based on buoyed weight.
Neutral point: 6,882 ft

**Environment:**

| | |
|---|---|
| H2S considered? | No |
| Surface temperature: | 75 °F |
| Bottom hole temperature: | 188 °F |
| Temperature gradient: | 1.40 °F/100ft |
| Minimum section length: | 1,000 ft |
| Cement top: | 2,284 ft |

**Non-directional string.**

| Run Seq | Segment Length (ft) | Size (in) | Nominal Weight (lbs/ft) | Grade | End Finish | True Vert Depth (ft) | Measured Depth (ft) | Drift Diameter (in) | Est. Cost ($) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 8063 | 4.5 | 11.60 | N-80 | LT&C | 8063 | 8063 | 3.875 | 33207 |

| Run Seq | Collapse Load (psi) | Collapse Strength (psi) | Collapse Design Factor | Burst Load (psi) | Burst Strength (psi) | Burst Design Factor | Tension Load (kips) | Tension Strength (kips) | Tension Design Factor |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 4105 | 6350 | 1.547 | 4105 | 7780 | 1.90 | 79.8 | 223 | 2.79 J |

Prepared by: Helen Sadik-Macdonald
Div of Oil,Gas & Minerals
Phone: 801/538-5357
FAX: 801/359-3940
Date: November 30,2006
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 8063 ft, a mud weight of 9.8 ppg The casing is considered to be evacuated for collapse purposes.
Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

**From:** Ed Bonner
**To:** Mason, Diana
**Date:** 5/11/2007 4:36 PM
**Subject:** Well Clearance

**CC:** Davis, Jim; Garrison, LaVonne; Hill, Brad; Hunt, Gil

The following wells have been given cultural resources clearance by the Trust Lands Cultural Resources Group:

EnCana Oil & Gas (USA) Inc
Middle Mesa State 36-24-29-24 (API 43 037 31856)

Enduring Resources, LLC
Archy Bench 10-22-34-36 (API 43 047 38605)
Asphalt Wash 11-24-41-16 ( API 43 047 38768)

EOG Resources, Inc
East Chapita 56-16 (API 43 047 39203)

Kerr McGee Oil & Gas Onshore LP
NBU 1022-24I (API 43 047 39031)

Tidewater Oil & Gas Company, LLC
Cactus Rose 36-43-2217 (API 43 019 31535)

If you have any questions regarding this matter please give me a call.

JON M. HUNTSMAN, JR.
*Governor*

GARY R. HERBERT
*Lieutenant Governor*

**State of Utah**

**Department of Natural Resources**

MICHAEL R. STYLER
*Executive Director*

**Division of Oil, Gas & Mining**

JOHN R. BAZA
*Division Director*

May 14, 2007

Enduring Resources, LLC
475 17th St., Ste. 1500
Denver, CO 80202

Re: Archy Bench 10-22-34-36 Well, 755' FSL, 2210' FEL, SW SE, Sec. 36, T. 10 South, R. 22 East, Uintah County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann.§ 40-6-1 *et seq.*, Utah Administrative Code R649-3-1 *et seq.*, and the attached Conditions of Approval, approval to drill the referenced well is granted.

Appropriate information has been submitted to DOGM and administrative approval of the requested exception location is hereby granted.

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-047-38605.

Sincerely,

Gil Hunt
Associate Director

pab
Enclosures

cc: Uintah County Assessor
SITLA

1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801
telephone (801) 538-5340 • facsimile (801) 359-3940 • TTY (801) 538-7458 • *www.ogm.utah.gov*

**Operator:** Enduring Resources, LLC
**Well Name & Number** Archy Bench 10-22-34-36
**API Number:** 43-047-38605
**Lease:** ML-49959

**Location:** SW SE **Sec.** 36 **T.** 10 South **R.** 22 East

## Conditions of Approval

1. **General**

   Compliance with the requirements of Utah Admin. R. 649-1 *et seq.*, the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

2. **Notification Requirements**

   The operator is required to notify the Division of Oil, Gas and Mining of the following action during drilling of this well:

   - 24 hours prior to cementing or testing casing – contact Dan Jarvis
   - 24 hours prior to testing blowout prevention equipment – contact Dan Jarvis
   - 24 hours prior to spudding the well – contact Carol Daniels
   - Within 24 hours of any emergency changes made to the approved drilling program – contact Dustin Doucet
   - Prior to commencing operations to plug and abandon the well – contact Dan Jarvis

   The operator is required to get approval from the Division of Oil, Gas and Mining before performing any of the following actions during the drilling of this well:

   - Plugging and abandonment or significant plug back of this well – contact Dustin Doucet
   - Any changes to the approved drilling plan – contact Dustin Doucet

   The following are Division of Oil, Gas and Mining contacts and their telephone numbers (please leave a voice mail message if the person is not available to take the call):

   - Dan Jarvis at: (801) 538-5338 office
     (801) 942-0873 home
   - Carol Daniels at: (801) 538-5284 office
   - Dustin Doucet at: (801) 538-5281 office
     (801) 733-0983 home

3. **Reporting Requirements**

   All required reports, forms and submittals will be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

4. Compliance with the State of Utah Antiquities Act forbids disturbance of archeological, historical, or paleontological remains. Should archeological, historical or paleontological remains be encountered during your operations, you are required to immediately suspend all operations and immediately inform the Trust Lands Administration and the Division of State History of the discovery of such remains.

5. In accordance with Order in Cause No. 190-5(b) dated October 28, 1982, the Operator shall comply with requirements of Rules R649-3-31 and R649-3-27 pertaining to Designated Oil Shale Areas. Additionally, the operator shall ensure that the surface and/or production casing is properly cemented over the entire oil shale interval as defined by Rule R649-3-31. The Operator shall report the actual depth the oil shale is encountered to the Division.

6. Compliance with the Conditions of Approval/Application for Permit to Drill outlined in the Statement of Basis. (Copy Attached)

7. This proposed well is located in an area for which drilling units (well spacing patterns) have not been established through an order of the Board of Oil, Gas and Mining (the "Board"). In order to avoid the possibility of waste or injury to correlative rights, the operator is requested, once the well has been drilled, completed, and has produced, to analyze geological and engineering data generated therefrom, as well as any similar data from surrounding areas if available. As soon as is practicable after completion of its analysis, and if the analysis suggests an area larger than the quarter-quarter section upon which the well is located is being drained, the operator is requested to seek an appropriate order from the Board establishing drilling and spacing units in conformance with such analysis by filing a Request for Agency Action with the Board.

8. Surface casing shall be cemented to the surface.

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

CONFIDENTIAL

FORM 9

# SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5. LEASE DESIGNATION AND SERIAL NUMBER: ML-49959

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A

7. UNIT or CA AGREEMENT NAME: N/A

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☑ OTHER

8. WELL NAME and NUMBER: Archy Bench 10-22-34-36

2. NAME OF OPERATOR: Enduring Resources, LLC

9. API NUMBER: 4304738605

3. ADDRESS OF OPERATOR: 475 17th Street, Suite 1500 CITY Denver STATE CO ZIP 80202

PHONE NUMBER: (303) 350-5114

10. FIELD AND POOL, OR WILDCAT: Undesignated

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 755' FSL - 2210' FEL

COUNTY: Uintah

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: SWSE 36 10S 22E S

STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | |
|---|---|---|---|
| ☑ NOTICE OF INTENT (Submit in Duplicate) | ☐ ACIDIZE | ☐ DEEPEN | ☐ REPERFORATE CURRENT FORMATION |
| Approximate date work will start: 3/1/2008 | ☐ ALTER CASING | ☐ FRACTURE TREAT | ☐ SIDETRACK TO REPAIR WELL |
| | ☐ CASING REPAIR | ☐ NEW CONSTRUCTION | ☐ TEMPORARILY ABANDON |
| | ☑ CHANGE TO PREVIOUS PLANS | ☐ OPERATOR CHANGE | ☐ TUBING REPAIR |
| | ☐ CHANGE TUBING | ☐ PLUG AND ABANDON | ☐ VENT OR FLARE |
| ☐ SUBSEQUENT REPORT (Submit Original Form Only) | ☐ CHANGE WELL NAME | ☐ PLUG BACK | ☐ WATER DISPOSAL |
| Date of work completion: | ☐ CHANGE WELL STATUS | ☐ PRODUCTION (START/RESUME) | ☐ WATER SHUT-OFF |
| | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ RECLAMATION OF WELL SITE | ☑ OTHER: New Total Depth |
| | ☐ CONVERT WELL TYPE | ☐ RECOMPLETE - DIFFERENT FORMATION | |

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Enduring would like to drill this well deeper than set forth in the approved APD.

1. Attached is a new proposed casing and cementing program, also
2. Attached is a new drilling program for this increase in depth.

Utah State Bond #RLB0008031
Operator No. N2750

**Approved by the Utah Division of Oil, Gas and Mining**

Date: 12/7/07

By:

RECEIVED
DEC 05 2007
DIV. OF OIL, GAS & MINING

NAME (PLEASE PRINT) Alvin R. (Al) Arlian TITLE Landman - Regulatory Specialist

SIGNATURE DATE 12/3/2007

(This space for State use only)

(5/2000) (See Instructions on Reverse Side)

| PROPOSED CASING AND CEMENTING PROGRAM | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SIZE OF HOLE | CASING SIZE, GRADE, AND WEIGHT PER FOOT | | | SETTING DEPTH | CEMENT TYPE, QUANTITY, YIELD, AND SLURRY WEIGHT | | | |
| 20" | 14" | line pipe | | 40 | 3 yards | Ready Mix | | |
| 12-1/4" | 9-5/8" | J-55 | 36# | 2,016 | Premium Lead | 498 sxs | 3.5 | 11.1 |
| | | | | | Premium Tail | 196 sxs | 1.15 | 15.8 |
| 8-1/2" | 7" | VHCP-11© | 11.6# | 9,000 | Class G | 94 sxs | 3.3 | 11 |
| | | | | | 50/50 Poz Class G | 635 sxs | 1.56 | 14.3 |
| 7-7/8" | 4-1/2" | N-80 | 13.5-15.1# | 12,955 | Class G | 22 SXS | 3.3 | 11 |
| | | | | | 50/50 Poz Class G | 810 SXS | 1.56 | 14.3 |

# Enduring Resources, LLC
# Arch Bench 10-22-34-36
# SWSE 36-10S-22E
# Uintah County, Utah
# Federal Lease: UTU-49959

## ONSHORE ORDER 1 - DRILLING PLAN

1. **Estimated Tops of Geological Markers:**

| Formation | Depth (K.B.) (feet) |
|---|---|
| Uinta | Surface |
| Green River | 901 |
| Wasatch | 3853 |
| Mesaverde | 5948 |
| Mancos | 8690 |
| Morrison | 12557 |

2. **Estimated Depths of Anticipated Water, Oil, Gas or Other Minerals:**

| Substance | Formation | Depth (K.B.) (in feet) |
|---|---|---|
| | | |
| | KB-Uinta Elevation: 5753' | |
| Oil / Gas | Green River | 901 |
| Oil /Gas | Wasatch | 3853 |
| Oil /Gas | Mesaverde | 5948 |
| Oil /Gas | Mancos | 8690 |
| Oil /Gas | Morrison | 12557 |
| | Estimated TD | 12760 |

An 12 1/4" hole will be drilled to approximately 2016 feet. The depth will be determined by the depth that the Birds Nest zone is encountered. The hole will be drilled 400 feet beyond the top of the Birds Nest zone and surface casing will be set. Surface casing will be pre-set before drilling rig is moved on location.

3. **Pressure Control Equipment: (5000 psi schematic attached)**

A. Type: Eleven (11) inch double gate hydraulic BOP with eleven (11) inch annular preventer on 5,000 psi casinghead, with 5,000 psi choke manifold equipped per the attached diagram. BOPE as specified in *Onshore Oil & Gas Order Number 2.* A PVT, stroke counter and flow sensor will be installed to check for flow and monitor pit volume.

B. Pressure Rating: 5,000 psi BOPE

C. Kelly will be equipped with upper and lower Kelly valves.

D. Testing Procedure: Annular Preventer

At a minimum, the annular preventer will be pressure tested to 50% of the stack rated working pressure for a period of ten (10) minutes or until provisions of the test are met, whichever is longer.
At a minimum, the above pressure test will be performed:

1. When the annular preventer is initially installed;
2. Whenever any seal subject to test pressure is broken;
3. Following related repairs; and
4. At thirty (30) day intervals.

In addition to the above, the annular preventer will be functionally operated at least weekly.

Blow-Out Preventer

At a minimum, the BOP, choke manifold, and related equipment will be pressure tested to the approved working pressure of the BOP stack (if isolated from the surface casing by a test plug) or to 70% of the internal yield strength of the surface casing (if the BOP is not isolated from the casing by a test plug). Pressure will be maintained for a period of at least ten (10) minutes or until the requirements of the test are met, whichever is longer.

At a minimum, the above pressure test will be performed:

1. When the BOP is initially installed;
2. Whenever any seal subject to test pressure is broken;
3. Following related repairs; and
4. At thirty (30) day intervals.

In addition to the above, the pipe and blind rams will be activated each trip, but not more than once each day. All BOP drills and tests will be recorded in the IADC driller's log.

E. Miscellaneous Information:

The blowout preventer and related pressure control equipment will be installed, tested and maintained in compliance with the specifications in and requirements of *Onshore Oil & Gas Order Number 2.*

## 4. Proposed Casing & Cementing Program:

**A.** Casing Program: All New

| Hole Size | Casing Size | Wt./Ft. | Grade | Joint | Depth Set (MD) |
|---|---|---|---|---|---|
| 20" | 14" O.D. | | | | 40' (GL) |
| 12 1/4" | 9-5/8" | 36# | J-55 | ST&C | 0 – 2,016' (KB) est. |
| 8 1/2" | 7" | 26# | HCP-110 | LT&C | 0 – 9000' (KB) |
| 6-1/4" | 4-1/2" | 13.5# & 15.1# | N-80 | LT&C | 0 – 12760' (KB) |

The surface casing will have guide shoe. Centralize the shoe joint with bowspring centralizers in the middle and top of the joint and the next 16 joints with bowspring centralizers on every other collar (8 centralizers total). Thread lock guide shoe. Surface casing will be pre-set before drilling rig is moved on location.

Casing string(s) will be pressure tested to 0.22 psi/foot of casing string length or 1500 psi, whichever is greater (not to exceed 70% of the internal yield strength of the casing), after cementing and prior to drilling out from under the casing shoe.

**B.** Casing Design Parameters:

| Depth (MD) | Casing | Collapse(psi)/SF | Burst (psi)/SF | Tension (mlbs)/SF |
|---|---|---|---|---|
| 40' (GL) | 14" OD | | | |
| 2016' (KB) | 9-5/8", 36#/ft, J55, STC | 2020/2.24(a) | 3520/3.91(b) | 394/6.25(c) |
| 9000' (KB) | 7", 26#/ft, N-80, LTC | 6230/1.27(d) | 9960/2.32 (e) | 522/2.60(f) |
| 12760 (KB) | 4-1/2", 13.5-15.1#ft, N-80, LTC | 11080/2.26(d) | 10480/2.44 (e) | 247/2.11(f) |

(a.) based on full evacuation of pipe with 8.6 ppg fluid on annulus
(b.) based on 8.6 ppg gradient with no fluid on annulus
(c.) based on casing string weight in 8.6 ppg mud
(d.) based on full evacuation of pipe with 10.0 ppg fluid on annulus
(e.) based on 9.2 ppg gradient, gas to surface, with no fluid on annulus, no gas gradient
(f.) based on casing string weight in 9.2 ppg mud

**PROPOSED CEMENTING PROGRAM**

**Surface Casing (if well will circulate)**-Cemented to surface

| CASING | SLURRY | FT. of FILL | CEMENT TYPE | SXS | EXCESS (%) | WEIGHT (ppg) | YIELD ($ft^3$/sx) |
|---|---|---|---|---|---|---|---|
| 9-5/8" | Lead | 1516 | Premium cement + 16% gel + 0.25 pps celloflake | 498 | 25% | 11.1 | 3.50 |
| 9-5/8" | Tail | 500 | Premium cement + 2% $CaC_2$ + 0.25 pps celloflake | 200 | 25% | 15.8 | 1.15 |

A cement top job is required if cement fallback is greater than 10' below ground level. Top job (weight 15.8 ppg, yield 1.15 $ft^3$/sx) cement will be premium cement w/ 3% $CaCl_2$.+0.25 pps celloflake. Volume as required

**Surface Casing (if well will not circulate)** - Cemented to surface

| CASING | SLURRY | FT. of FILL | CEMENT TYPE | SXS | EXCESS (%) | WEIGHT (ppg) | YIELD ($ft^3$/sx) |
|---|---|---|---|---|---|---|---|
| 9-5/8" | Lead | 500 | Premium cement + 2% $CaCl_2$ + 0.25 pps celloflake | 196 | 25 | 15.8 | 1.15 |
| 9-5/8" | Top job | As req. | Premium cement + 3% $CaCl_2$ + 0.25 pps celloflake | As Req. | | 15.8 | 1.15 |

**Intermediate Casing** - Cemented TD to 300' above base of surface casing

| CASING | SLURRY | FT. of FILL | CEMENT TYPE | SXS | EXCESS (%) | WEIGHT (ppg) | YIELD ($ft^3$/sx) |
|---|---|---|---|---|---|---|---|
| 7" | Lead | 2994 | Class "G" + 5% NaCl + 12% Gel + 0.25 pps celloflake + 0.2% antifoam + 0.25% fluid loss + 1% extender | 94 | 25 | 11.0 | 3.3 |
| 7" | Tail | 4885 | 50/50 POZ Class G + 2% gel +1% $CaCl_2$ + 0.2% dispersant + 0.2% fluid loss + 0.1% antifoam | 635 | 25 | 14.3 | 1.56 |

**Production Casing - Liner** - Cemented TD to 300' above base of Intermediate Casing

| CASING | SLURRY | FT. of FILL | CEMENT TYPE | SXS | EXCESS (%) | WEIGHT (ppg) | YIELD ($ft^3$/sx) |
|---|---|---|---|---|---|---|---|
| 4 1/2" | Lead | 300 | Class "G" + 5% NaCl + 12% Gel + 0.25 pps celloflake + 0.2% antifoam + 0.25% fluid loss + 1% extender | 22 | 25 | 11.0 | 3.3 |
| 4-1/2" | Tail | 3469 | 50/50 POZ Class G + 2% gel +1% $CaCl_2$ + 0.2% dispersant + 0.2% fluid loss + 0.1% antifoam | 810 | 25 | 14.3 | 1.56 |

Cement volumes for the 4-1/2" Production Casing will be calculated to provide a top of cement to 300' above base of Intermediate casing. Cement volumes are approximate and were calculated under the assumption that a gauge hole will be achieved. Actual cement volumes may vary due to variations in the actual hole size and will be determined by running a caliper log on the drilled hole. Actual cement types may vary due to hole conditions and cement contractor used.

All waiting on cement (WOC) times will be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

## 5. Drilling Fluids (mud) Program:

| Interval (MD) | Mud Weight | Fluid Loss | Viscosity | Mud Type |
|---|---|---|---|---|
| 0' – 2016' (KB) | | No cntrl | | Air/mist |
| 2000'-3000' (KB) | 8.4-8.6 | No cntrl | 28-36 | Water |
| 3000'-9000' (KB) | 8.8-10.8 | 8 - 10 ml | 32-42 | LSND |
| 9000-12760' (KB) | 10.8-12.5 | 8-10 ml | 40-60 | LSND-Possible OBM |

Sufficient mud material(s) to maintain mud properties, control lost circulation and contain a blowout will be available at the well site during drilling operations.

## 6. Evaluation Program:

Tests: No tests are currently planned.

Coring: No cores are currently planned.

Samples: No sampling is currently planned.

Logging

- Dual Induction – SFL /Gamma Ray/Caliper/SP/TDLT/CNL/ML
  TD to Base Surface Casing
- Cement Bond Log / Gamma Ray:
  TD to Base of Surface Casing or Top of Cement if below Base of Surface Casing

Stimulation: A stimulation or frac treatment will be designed for completion of this well based on openhole log analysis. The drill site, as approved, will be sufficient size to accommodate all completion activities.

## 7. Abnormal Conditions:

No abnormal temperatures or pressures are anticipated. No $H_2S$ has been encountered or known to exist from previous wells drilled to similar depths in the general area.

Maximum anticipated bottom hole pressure equals approximately 4078 psi (calculated at 0.52psi/foot of 2353 psi (anticipated bottom hole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot of hole).

## 8. Anticipated Starting Dates:

- Anticipated Commencement Date- Within one year of APD issue.
- Drilling Days- Approximately 20 days
- Completion Days - Approximately 20 days
- Anticipate location construction within 30 days of permit issue.

## 9. Variances:

None anticipated

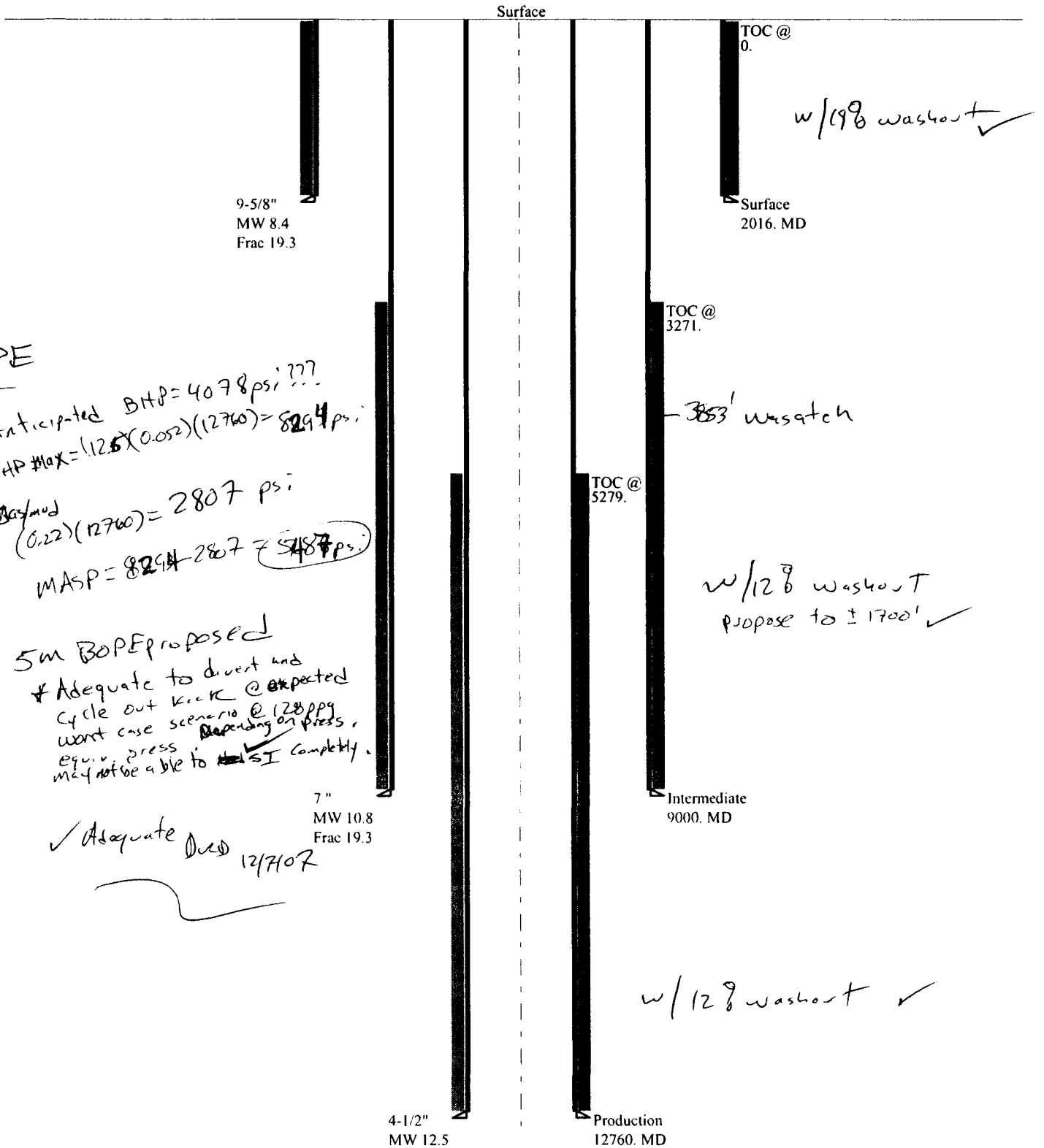
## 10. Other:

A Cultural Resource Inventory and Paleontology reconnaissance shall be conducted for the well location, access route and pipeline. The reports shall be submitted to the Division of Oil, Gas and Mining and the School and Institutional Trust lands Administration upon their receipt.

Inclination surveys will be run every 2000 feet to monitor hole angle.

# 2006-11 Enduring Archy Bench 10-22-34-36amd

## Casing Schematic




BOPE

Anticip-ted BHP = 4078 psi ???

BHP Max = (12.5)(0.052)(12760) = 8294 psi

Max mud (0.22)(12760) = 2807 psi

MASP = 8294 - 2807 = 5487 psi

5m BOPE proposed

* Adequate to divert and cycle out kick @ expected worst case scenario @ 12.8 ppg depending on press, equip. press may not be able to SI Completely.

✓ Adequate Dwd 12/7/07

| | |
|---|---|
| Well name: | **2006-11 Enduring Archy Bench 10-22-34-36amd** |
| Operator: | **Enduring Resources, LLC** |
| String type: | Surface |
| Project ID: | 43-047-38605 |
| Location: | Uintah County, Utah |

**Design parameters:**

**Collapse**

Mud weight: 8.400 ppg
Design is based on evacuated pipe.

**Burst**

Max anticipated surface pressure: 1,774 psi
Internal gradient: 0.120 psi/ft
Calculated BHP 2,016 psi

No backup mud specified.

**Minimum design factors:**

**Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Tension:**

8 Round STC: 1.80 (J)
8 Round LTC: 1.80 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.60 (B)

Tension is based on buoyed weight.
Neutral point: 1,765 ft

**Environment:**

H2S considered? No
Surface temperature: 75 °F
Bottom hole temperature: 103 °F
Temperature gradient: 1.40 °F/100ft
Minimum section length: 1,000 ft

Cement top: Surface

**Non-directional string.**

**Re subsequent strings:**

Next setting depth: 8,063 ft
Next mud weight: 9.800 ppg
Next setting BHP: 4,105 psi
Fracture mud wt: 19.250 ppg
Fracture depth: 2,016 ft
Injection pressure: 2,016 psi

| Run Seq | Segment Length (ft) | Size (in) | Nominal Weight (lbs/ft) | Grade | End Finish | True Vert Depth (ft) | Measured Depth (ft) | Drift Diameter (in) | Est. Cost ($) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2016 | 9.625 | 36.00 | J-55 | ST&C | 2016 | 2016 | 8.796 | 17523 |

| Run Seq | Collapse Load (psi) | Collapse Strength (psi) | Collapse Design Factor | Burst Load (psi) | Burst Strength (psi) | Burst Design Factor | Tension Load (kips) | Tension Strength (kips) | Tension Design Factor |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 880 | 2020 | 2.296 | 2016 | 3520 | 1.75 | 63.6 | 394 | 6.20 J |

Prepared by: Helen Sadik-Macdonald, Div of Oil,Gas & Minerals
Phone: 801/538-5357
FAX: 801/359-3940
Date: December 7,2007
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 2016 ft, a mud weight of 8.4 ppg The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

*Engineering responsibility for use of this design will be that of the purchaser.*

| | |
|---|---|
| Well name: | **2006-11 Enduring Archy Bench 10-22-34-36amd** |
| Operator: | **Enduring Resources, LLC** |
| String type: | Intermediate |
| Project ID: | 43-047-38605 |
| Location: | Uintah County, Utah |

**Design parameters:**

**Collapse**

| | |
|---|---|
| Mud weight: | 10.800 ppg |
| Internal fluid density: | 2.330 ppg |

**Burst**

| | |
|---|---|
| Max anticipated surface pressure: | 5,479 psi |
| Internal gradient: | 0.220 psi/ft |
| Calculated BHP | 7,459 psi |
| Annular backup: | 2.33 ppg |

**Minimum design factors:**

**Collapse:**

| | |
|---|---|
| Design factor | 1.125 |

**Burst:**

| | |
|---|---|
| Design factor | 1.00 |

**Tension:**

| | |
|---|---|
| 8 Round STC: | 1.80 (J) |
| 8 Round LTC: | 1.80 (J) |
| Buttress: | 1.60 (J) |
| Premium: | 1.50 (J) |
| Body yield: | 1.60 (B) |

Tension is based on buoyed weight.
Neutral point: 7,534 ft

**Environment:**

| | |
|---|---|
| H2S considered? | No |
| Surface temperature: | 75 °F |
| Bottom hole temperature: | 201 °F |
| Temperature gradient: | 1.40 °F/100ft |
| Minimum section length: | 1,000 ft |
| Cement top: | 3,271 ft |

**Non-directional string.**

**Re subsequent strings:**

| | |
|---|---|
| Next setting depth: | 12,760 ft |
| Next mud weight: | 12.500 ppg |
| Next setting BHP: | 8,286 psi |
| Fracture mud wt: | 19.250 ppg |
| Fracture depth: | 12,760 ft |
| Injection pressure: | 12,760 psi |

| Run Seq | Segment Length (ft) | Size (in) | Nominal Weight (lbs/ft) | Grade | End Finish | True Vert Depth (ft) | Measured Depth (ft) | Drift Diameter (in) | Est. Cost ($) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 9000 | 7 | 26.00 | N-80 | LT&C | 9000 | 9000 | 6.151 | 80012 |

| Run Seq | Collapse Load (psi) | Collapse Strength (psi) | Collapse Design Factor | Burst Load (psi) | Burst Strength (psi) | Burst Design Factor | Tension Load (kips) | Tension Strength (kips) | Tension Design Factor |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 3960 | 5410 | 1.366 | 6369 | 7240 | 1.14 | 195.9 | 519 | 2.65 J |

Prepared by: Helen Sadik-Macdonald, Div of Oil,Gas & Minerals
Phone: 801/538-5357
FAX: 801/359-3940
Date: December 7,2007
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 9000 ft, a mud weight of 10.8 ppg An internal gradient of .121 psi/ft was used for collapse from TD
Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

| | |
|---|---|
| Well name: | **2006-11 Enduring Archy Bench 10-22-34-36amd** |
| Operator: | **Enduring Resources, LLC** |
| String type: | Production |
| Project ID: | 43-047-38605 |
| Location: | Uintah County, Utah |

**Design parameters:**

**Collapse**
Mud weight: 12.500 ppg
Design is based on evacuated pipe.

**Burst**
Max anticipated surface pressure: 5,479 psi
Internal gradient: 0.220 psi/ft
Calculated BHP 8,286 psi

No backup mud specified.

**Minimum design factors:**

**Collapse:**
Design factor 1.125

**Burst:**
Design factor 1.00

**Tension:**
8 Round STC: 1.80 (J)
8 Round LTC: 1.80 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.60 (B)

Tension is based on buoyed weight.
Neutral point: 10,481 ft

Estimated cost: 63,023 ($)

**Environment:**
H2S considered? No
Surface temperature: 75 °F
Bottom hole temperature: 254 °F
Temperature gradient: 1.40 °F/100ft
Minimum section length: 1,000 ft

Cement top: 5,279 ft

**Non-directional string.**

| Run Seq | Segment Length (ft) | Size (in) | Nominal Weight (lbs/ft) | Grade | End Finish | True Vert Depth (ft) | Measured Depth (ft) | Drift Diameter (in) | Est. Cost ($) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 11800 | 4.5 | 13.50 | N-80 | LT&C | 11800 | 11800 | 3.795 | 56541 |
| 1 | 960 | 4.5 | 15.10 | HCL-80 | LT&C | 12760 | 12760 | 3.701 | 6482 |

| Run Seq | Collapse Load (psi) | Collapse Strength (psi) | Collapse Design Factor | Burst Load (psi) | Burst Strength (psi) | Burst Design Factor | Tension Load (kips) | Tension Strength (kips) | Tension Design Factor |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 7662 | 8540 | 1.115 | 8075 | 9020 | 1.12 | 141.7 | 270 | 1.91 J |
| 1 | 8286 | 12330 | 1.488 | 8286 | 10480 | 1.26 | -17.6 | 325 | -18.42 J |

Prepared by: Helen Sadik-Macdonald
Div of Oil,Gas & Minerals
Phone: 801/538-5357
FAX: 801/359-3940
Date: December 7,2007
Salt Lake City, Utah

Remarks:
Collapse is based on a vertical depth of 12760 ft, a mud weight of 12.5 ppg The casing is considered to be evacuated for collapse purposes.
Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

FORM 9

**STATE OF UTAH**
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

5. LEASE DESIGNATION AND SERIAL NUMBER: ML-49959

# SUNDRY NOTICES AND REPORTS ON WELLS

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: n/a

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

7. UNIT or CA AGREEMENT NAME: n/a

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☑ OTHER

8. WELL NAME and NUMBER: Archy Bench 10-22-34-36

2. NAME OF OPERATOR: Enduring Resources, LLC

9. API NUMBER: 4304738605

3. ADDRESS OF OPERATOR: 475 17th Street, Suite 1500 CITY Denver STATE CO ZIP 80202

PHONE NUMBER: (303) 350-5114

10. FIELD AND POOL, OR WILDCAT: Undesignated

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 755' FSL - 2210' FEL

COUNTY: Uintah

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: SWSE 36 10S 22E S

STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | |
|---|---|---|---|
| ☑ NOTICE OF INTENT (Submit in Duplicate) | ☐ ACIDIZE | ☐ DEEPEN | ☐ REPERFORATE CURRENT FORMATION |
| Approximate date work will start: | ☐ ALTER CASING | ☐ FRACTURE TREAT | ☐ SIDETRACK TO REPAIR WELL |
| | ☐ CASING REPAIR | ☐ NEW CONSTRUCTION | ☐ TEMPORARILY ABANDON |
| | ☐ CHANGE TO PREVIOUS PLANS | ☐ OPERATOR CHANGE | ☐ TUBING REPAIR |
| | ☐ CHANGE TUBING | ☐ PLUG AND ABANDON | ☐ VENT OR FLARE |
| ☐ SUBSEQUENT REPORT (Submit Original Form Only) | ☐ CHANGE WELL NAME | ☐ PLUG BACK | ☐ WATER DISPOSAL |
| Date of work completion: | ☐ CHANGE WELL STATUS | ☐ PRODUCTION (START/RESUME) | ☐ WATER SHUT-OFF |
| | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ RECLAMATION OF WELL SITE | ☑ OTHER: Request for APD Extension |
| | ☐ CONVERT WELL TYPE | ☐ RECOMPLETE - DIFFERENT FORMATION | |

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Enduring Resources, LLC respectfully request an extension to the expiration date of this Application for Permit to Drill ....

FROM: 5/14/2008
TO: 5/14/2009

Approved by the
Utah Division of
Oil, Gas and Mining

Date: 05-20-08
By:

COPY SENT TO OPERATOR
Date: 5.21.2008
Initials: KS

NAME (PLEASE PRINT) Alvin (Al) Arlian TITLE Landman - Regulatory Specialist

SIGNATURE DATE 5/12/2008

(This space for State use only)

RECEIVED
MAY 19 2008
DIV. OF OIL, GAS & MINING

(5/2000) (See Instructions on Reverse Side)

RESET

**Application for Permit to Drill**
**Request for Permit Extension**
**Validation**
(this form should accompany the Sundry Notice requesting permit extension)

**API:** 4304738605
**Well Name:** Archy Bench 10-22-34-36
**Location:** 755' FSL - 2210' FELSWSE, Sec 36, T10S-R22E
**Company Permit Issued to:** Enduring Resources, LLC
**Date Original Permit Issued:** 5/14/2007

The undersigned as owner with legal rights to drill on the property as permitted above, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision.

Following is a checklist of some items related to the application, which should be verified.

If located on private land, has the ownership changed, if so, has the surface agreement been updated? Yes☐No☐

Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location? Yes☐No☑

Has there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well? Yes☐No☑

Have there been any changes to the access route including ownership, or right-of-way, which could affect the proposed location? Yes☐No☑

Has the approved source of water for drilling changed? Yes☐No☑

Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation? Yes☐No☑

Is bonding still in place, which covers this proposed well? Yes☑No☐

Signature

5/12/2008
Date

Title: Landman - Regulatory Specialist

Representing: Enduring Resources, LLC

RECEIVED
MAY 19 2008
DIV. OF OIL, GAS & MINING

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

CONFIDENTIAL

FORM 9

# SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5. LEASE DESIGNATION AND SERIAL NUMBER: ML-49959

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: n/a

7. UNIT or CA AGREEMENT NAME: n/a

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☑ OTHER

8. WELL NAME and NUMBER: Archy Bench 10-22-34-36

2. NAME OF OPERATOR: Enduring Resources, LLC

9. API NUMBER: 4304738605

3. ADDRESS OF OPERATOR: 475 17th Street, Suite 1500 CITY Denver STATE CO ZIP 80202

PHONE NUMBER: (303) 350-5114

10. FIELD AND POOL, OR WILDCAT: Undesignated

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 755' FSL - 2210' FEL

COUNTY: Uintah

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: SWSE 36 10S 22E S

STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | |
|---|---|---|---|
| ☑ NOTICE OF INTENT (Submit in Duplicate) | ☐ ACIDIZE | ☐ DEEPEN | ☐ REPERFORATE CURRENT FORMATION |
| Approximate date work will start: | ☐ ALTER CASING | ☐ FRACTURE TREAT | ☐ SIDETRACK TO REPAIR WELL |
| | ☐ CASING REPAIR | ☐ NEW CONSTRUCTION | ☐ TEMPORARILY ABANDON |
| | ☐ CHANGE TO PREVIOUS PLANS | ☐ OPERATOR CHANGE | ☐ TUBING REPAIR |
| | ☐ CHANGE TUBING | ☐ PLUG AND ABANDON | ☐ VENT OR FLARE |
| ☐ SUBSEQUENT REPORT (Submit Original Form Only) | ☐ CHANGE WELL NAME | ☐ PLUG BACK | ☐ WATER DISPOSAL |
| Date of work completion: | ☐ CHANGE WELL STATUS | ☐ PRODUCTION (START/RESUME) | ☐ WATER SHUT-OFF |
| | ☐ COMMINGLE PRODUCING FORMATIONS | ☐ RECLAMATION OF WELL SITE | ☑ OTHER: Request for APD Extension |
| | ☐ CONVERT WELL TYPE | ☐ RECOMPLETE - DIFFERENT FORMATION | |

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Enduring Resources, LLC respectfully requests a one year extension of the expiration date of this Application for Permit to Drill.

**Approved by the Utah Division of Oil, Gas and Mining**

Date: 05-18-09

By:

**COPY SENT TO OPERATOR**

Date: 5.19.2009

Initials: KS

NAME (PLEASE PRINT) Alvin (Al) Arlian TITLE Landman - Regulatory Specialist

SIGNATURE DATE 5/11/2009

**(This space for State use only)**

**RECEIVED**

**MAY 18 2009**

**DIV. OF OIL, GAS & MINING**

(5/2000) (See Instructions on Reverse Side)

RESET

**Application for Permit to Drill**
**Request for Permit Extension**
**Validation**
(this form should accompany the Sundry Notice requesting permit extension)

**API:** 4304738605
**Well Name:** Archy Bench 10-22-34-36
**Location:** 755' FSL - 2210' FELSWSE, Sec 36, T10S-R22E
**Company Permit Issued to:** Enduring Resources, LLC
**Date Original Permit Issued:** 5/14/2007

The undersigned as owner with legal rights to drill on the property as permitted above, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision.

Following is a checklist of some items related to the application, which should be verified.

If located on private land, has the ownership changed, if so, has the surface agreement been updated? Yes☐No☐

Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location? Yes☐No☑

Has there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well? Yes☐No☑

Have there been any changes to the access route including ownership, or right-of-way, which could affect the proposed location? Yes☐No☑

Has the approved source of water for drilling changed? Yes☐No☑

Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation? Yes☐No☑

Is bonding still in place, which covers this proposed well? Yes☑No☐

Signature

5/11/2009
Date

Title: Administrative Assistant

Representing: Enduring Resources, LLC

RECEIVED
MAY 18 2009
DIV. OF OIL, GAS & MINING

GARY R. HERBERT
*Governor*
GREGORY S. BELL
*Lieutenant Governor*

# State of Utah
**DEPARTMENT OF NATURAL RESOURCES**
MICHAEL R. STYLER
*Executive Director*
**Division of Oil, Gas and Mining**
JOHN R. BAZA
*Division Director*

May 25, 2010

Al Arlian
Enduring Resources, LLC
475 17TH Street Ste 1500
Denver, CO 80202

Re: APD Rescinded – Archy Bench 10-22-34-36, Sec. 36 T.10S, R. 22E
Uintah County, Utah API No. 43-047-38605

Dear Mr. Arlian:

The Application for Permit to Drill (APD) for the subject well was approved by the Division of Oil, Gas and Mining (Division) on May 14, 2007. On May 20, 2008 and May 18, 2009 the Division granted a one-year APD extension. No drilling activity at this location has been reported to the division. Therefore, approval to drill the well is hereby rescinded, effective May 25, 2010.

If any previously unreported operations have been performed on this well location, it is imperative that you notify the Division immediately.

Sincerely,

Diana Mason
Environmental Scientist

cc: Well File
SITLA, Ed Bonner

1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801
telephone (801) 538-5340 • facsimile (801) 359-3940 • TTY (801) 538-7458 • *www.ogm.utah.gov*

UTAH DNR OIL, GAS & MINING